

ENCYCLOPAEDIA OF INDIAN MEDICINE

VOLUME FIVE

Materia Medica —
Mineral and Metallic Drugs

Dr. S.R. Sudarshan

लोकाः समस्ताः
सुखिनो भवन्तु ॥



SR I DHANVANTARI

Dr. V. Parameshvara Charitable Trust
Bangalore

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*Drawing from a temple icon in Tamil Nadu
(Courtesy : Regional and Technical Development Centre, Bangalore)*

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Materia Medica - Metallic and Mineral Drugs

Editor

Dr. S. R. SUDARSHAN



**Popular
prakashan**

On behalf of

Dr. V. PARAMESHWARA CHARITABLE TRUST, Bangalore

**ENCYCLOPAEDIA
OF
INDIAN MEDICINE PROJECT**

VOLUME FIVE

Sponsored by

**Dr. V. P. Parameshvara Charitable Trust
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Dr. V. Parameshvara

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Editor

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PREFACE

Indian religions are well known in the world. The philosophical systems that emerged on the Indian soil have also engaged the attention of scholars all over the world. India's achievements in the field of science and technology have also been recognised. However, the fact that India developed a system of medicine, thousands of years ago, has not received wide coverage in the world. And that the system thus developed is still prevalent among the masses of India is likewise not generally known, even to historians of medicine.

There are manifold reasons for this general ignorance of Indian medicine among historians of medicine, medical practitioners outside the country and intelligentsia interested in the problems of health and disease. One is absence of authoritative and well documented publications in English by Indians, dealing with this branch of medicine. The European indologists who have taken an interest in Indian medicine and have written on the subject do not seem to carry much credibility, because they are alien to the traditional details which are indispensable to the understanding of the spirit, outlook and value of Indian medicine. The literature available on this topic written in the traditional style of Indian languages have proved to be enigmatic to the modern reader. A great need is, therefore, felt for an authentic publication which communicates to the modern mind the traditional wisdom of India concerning medical practice.

The *Encyclopaedia of Indian Medicine* has been planned in six volumes to fulfill this need. The first three volumes have come out already (1985 and 1987), and the next three volumes are now being released. The first volume provided the historical perspective as well as an acquaintance with the classical medical literature in India. The second volume dealt with the basic ideas in Ayurvedic theory and practice. The third volume gave a detailed account of clinical examination and diagnostic methods in Ayurveda. These volumes were prepared by Vidyalkara, Sastra-chudamani, Vachaspati Prof. S.K. Ramachandra Rao who hails from a family of traditional physicians and has been conversant with Ayurvedic texts from his boyhood. He was the president of the Ayurvedic Academy, Bangalore. He has also been a scientist, having headed the Department of Clinical Psychology in the National Institute of Mental Health and Neurosciences, where he was instrumental in opening a department in Ayurveda. He was also a visiting Professor at the

Centre for Theoretical Studies, Indian Institute of Science, and is a Senior Fellow of National Institute of Advanced Studies, Bangalore.

The three subsequent volumes which are now seeing the light of day were prepared by his son, Dr. S.R.Sudarshan, who is an alumnus of the Government. College of Indian Medicine, Bangalore, and who has been a successful and popular Ayurvedic physician and Consultant in Bangalore. He has also been an author of several volumes dealing with Ayurvedic theory and practice. The three volumes that have been included in the *Encyclopaedia of Indian Medicine* pertain to the Materia Medica of herbal and mineral drugs used in Ayurveda, and to the diseases and the therapeutic practices in Ayurveda.

It is hoped that the comprehensive and factual knowledge of Ayurveda, enshrined in these volumes of *Encyclopaedia of Indian Medicine*, will now be available to the world for the more efficient health-care programmes that are afoot. We are grateful to Prof. S.K.Ramachandra Rao and to Dr. S.R.Sudarshan for having spared their time and energy to complete the volumes we undertook. We also acknowledge the help of Messers Popular Prakashan, Mumbai in bringing out these volumes. We regret that due to several factors beyond our control the publication of the three later volumes which were ready for publication more than fifteen years ago was delayed beyond our expectation.

Bangalore

Dr.V.Parameshvara

Chairman

Dr. V. Parameshvara Charitable Trust,

Bangalore.

INTRODUCTION

The first three volumes of the *Encyclopaedia of Indian Medicine* edited by Prof. S. K. Ramachandra Rao and published in 1985 deal with the historical perspective, the basic concepts, and clinical examination and diagnostic methods respectively.

Of the subsequent volumes, the fourth one deals with the herbal drugs that have been described in the texts of Ayurveda. The information regarding the rasa, guna, virya, vipaka and the medicinal action has been taken from various nighantus and the samhitas; however the main text that has been referred to is the *Saligrama-nighantu*. All the herbs have been given the botanical names excepting those plants that have not been accurately identified, such as meda, mahameda and other plants that form the ashta-varga. I have tried to adopt a clinical approach by giving the therapeutic applications of numerous herbs that have been gleaned from the ancient classical texts like *Charaka-samhita* and *Susruta-samhita*.

The names of diseases have been given in English so as to make it more accessible, but they are only approximate. Thus dyspnoea and asthma are used as synonyms for the disease svasa while toxicosis refers to visha and drugs useful in toxicosis are those which are vishahara or vishaghna.

The fifth volume consists of the description and analysis of the metallic and mineral drugs that are used in Ayurveda, as well as an account of the animal products that have been mentioned in the Ayurvedic texts. The sixth volume contains a detailed account of the aetiology, pathogenesis, prodromal symptoms, symptomatology and treatment of all diseases that find a mention in the texts.

I am grateful to Dr. V. Parameshvara for having sponsored this work. I thank Mr. Prasad for the neat line drawings of the plants.

Dr. S. R. Sudarshan

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AN OVERVIEW

Medieval India had a glittering galaxy of celebrated alchemists (Rasa-vādins). Vāgbhata in his monumental work *Rasaratna Samucchaya* pays obeisance to many distinguished alchemists. Many such scholars shone in the fields of alchemy and enriched the development of the Indian System of Medicine.

Initially the alchemists endeavoured to achieve success in the field of *loha-siddhi*. *Loha-siddhi* means transmutation or aurification of baser metals into the royal metal, gold. With fanatical zeal they devoted all their time and energy to accomplish this. Their experiments can be broadly classified into five categories or *Vedhas* converting baser metals to gold: *lepa-vedha* or smearing method, *kshepa-vedha* or throwing method, *kunta-vedha* or pouring method, *dhūma-vedha* or fumigation method and *sparsa-vedha* or touch method. Their experimental investigations were numerous. A few examples are given below:

1. **Lepa-vedha:** It is the process of converting other metals into gold by the application or smearing of processed mercury and subjecting it to mild heat. *Rasārṇava kalpa* gives a method of *lepa-vedha*. Equal quantities of mercury, sulphur and orpiment are mixed together and ground to a powder using a pestle and mortar. A small quantity of gold dust is added to this fine powder and this is again triturated. This mixture is buried in the earth at a depth of five feet. This processed mercury is smeared on metal foils which are exposed to the sun's heat. It is believed that this mixture will have attained the power of transmission, and will turn the metal foils into gold.
2. **Kshepa-vedha:** It is a process of converting the desired molten metal into gold by throwing or adding processed mercury over it.
3. **Kunta-vedha:** In the text *Rasārṇava*, the method has been described thus: processed mercury is poured with the help of specially designed forceps into the molten base metal. The liquid metal gets transformed into gold.
4. **Dhūma-vedha:** This is a process in which the vapours of mercury are brought into contact with metals of a lower grade by which they are converted to gold.

5. **Sparsā-vedha:** Transformation of metals to gold by touch. According to Rasārṇava kalpa, processed mercury when mixed with the juice of the plant harindari and seven times its own weight of gold, is said to possess the power of transmutation by a mere touch.

The alchemists thus concluded that they had achieved transmutation of base metals to gold, but the fact is that in these processes, due to the electrode potential difference, a thin surface layer of gold was deposited on the thin foil of base metal. Due to this the alchemists wrongly inferred that the top layer of the base metal had been transformed into gold. To strengthen this layer and for further penetration the experiments were repeated. In other experiments the resulting golden colour of the base metal was itself believed to be gold. When tested on a touchstone it was found to be a surface film of gold, whereas the base metal remained unchanged. Even this layer of gold had emerged from the extra gold powder they had added during the experiments.

Alchemists and Deha-siddhi: During their experiments on aurification of baser metals, the intelligent ones among them wondered why the same experiments could not be undertaken on human beings. Their line of thinking was that when insentient base metals could be converted into gold, surely partaking of processed mercury might also transmute the perishable body into an ageless one, or at least extend its longevity.

Minerals and metals are inorganic in nature and an antithesis to the organic nature of human tissues. If these are taken as drugs without *samskaras* they will not be digested or assimilated and will be thrown out of the body. They are toxic in nature and produce harmful effects. The task of these brilliant alchemists was to make the inorganic drugs easily absorbable and non-toxic, and therapeutically effective. Virtually it meant changing the innate property of the substance (metal) both physically and chemically, and at the same time maintaining its therapeutic property. It posed a great challenge to the physicians. With determination and an analytical outlook they pursued the experiments. Investigation and research went hand in hand. Laboratories with many facilities were established. Their inventiveness in the planning of the pharmacopoeia, laboratories and their instituting rules and regulations for the recruitment of the medical personnel is really astonishing.

Rasa-śāla or Pharmaceutical Laboratory: The rasa-vādins had very clear cut norms in establishing their laboratory. They had laid down their own standards for the selection of the site, the construction, the selection of staff and students, etc. Below is given a typical layout for the laboratory:

Site: the site chosen shall be close to water sources like a well or pond. The architecture of the building shall blend with the surrounding tranquillity of nature. A fence shall be built to prevent trespassing. The building shall be built at the north-western part of the site; green and dried herbs shall be readily available.

The icon of mercury shall be installed on the eastern site. On the south-eastern side, equipment related to heating like ovens, furnaces, etc. shall be located. At the

southern part, grinding, pulverising and paste making shall be undertaken with the help of a mortar and pestle. The south-western part is reserved for a workshop where the instruments are repaired and sharpened. The western side is used for cleaning and washing. Drying shall be done at the north-western corner. In the southern region, transmutation experiments are to be undertaken. The stores shall be located at the north-eastern side. The stores shall be well planned to keep raw materials for the preparation of drugs and also the prepared drugs.

The equipment employed in the laboratory includes mortars and pestles of different sizes and shapes, and special mortars which can be heated; instruments like knives, files, sieves; raw materials for the manufacture of crucibles like clay, paddy husks, cotton; melting accessories like ladles, and different types of fuel like wood, cow dung, charcoal, bellows and clay tubes.

Qualification of the Teacher: The teacher shall be of a noble character; shall be pious and scholarly; shall be a devotee of Śiva and Viṣṇu; shall be well versed in the Rasa śāstra rituals; shall have the earnestness to learn more; and shall be healthy and physically fit.

Preparation of Bhasma: The preparation of the drug calx or Bhasma is explained briefly:

1. **Sattvapātana:** The raw material needed for the drug bhasma was a metal piece. Metal pieces with a consistent quality were not available. Hence it was necessary for them to produce the metal itself. The only way was to extract the metal from the ore. After a few trials they perfected the extraction method. They devised the sattvapātana method of smelting, i.e. extraction of a metal from its ore by a process involving melting and reduction. An ore when mixed with ingredients of the kshāra-varga, amla-varga and drāvaka-varga and heated strongly in a crucible yields its metallic portion. This is a pyrometallurgic process, which involves the reduction of the metallic ores to metal using the reducing agent carbon. The carbon needed for the sattvapātana process was got from the destructive distillation of the herbal ingredients present in the kshāra and amla varga. The drāvaka-varga acted like a flux in cleaning the metal. It is acknowledged that the Rasa-vādins were the first to extract Zinc metal from the ore, Rasaka or Calamine by an ingenious downward distillation process, (R.R.S., 2, 157-167).

The ores were however used for medicinal purposes after sodhana and māraṇa, as also the minerals.

2. **Sodhana:** The next process was sodhana or nisechana or tapana. The crucible after the sattvapātana process was allowed to cool and was then broken. The metal mass was then collected and cleaned using a brush. To make it absolutely free from adhering physical and chemical impurities like slag or ore, the sodhana process was adopted. In this process the metal obtained after sattvapātana is beaten into thin sheets and then subjected to heat

treatment. This is mainly to convert the soft metal into a hardened one or vice versa. The thin sheets are heated until they are red-hot and dipped in various cold liquids. The heating and dipping are repeated a number of times, which varies from metal to metal. This method is applicable for drugs of a hard nature like copper, iron and diamond. By this process the material is converted to a brittle mass which could easily be reduced to a coarse powder by simple hammering. The impurities present are easily identifiable and removed from the coarse powder. During the quenching process itself some of the chemical impurities react with the quenching media and are separated out. The repetition of the process depends on the material and can be suitably adjusted, but this process of sodhana is not the same for all metals. There are many variations.

3. **Marana Process:** After sodhana comes the marana process. Marana means killing the toxic property of the substance. There are two subdivisions in this process. They are bhavana and puta processes.

Bhavana: It is the process of grinding the drugs (the coarse powder obtained from the sodhana process) with herbal decoctions in a mortar and pestle into a fine powder. First the thick herbal extracts are added, mixed and made into a paste and ground to fine particles. Then a further quantity of the extract is added and the mass is triturated to get a microfine powder. This is an important step in the pharmaceutical stage. The molecular cohesion of the metal is lost and the particles float in water, in contrast to the solid mass, which would have sunk otherwise. In short it loses its gravitational character. This is the first breakthrough they achieved in making the metallic drug easily absorbable. But still the toxicity of the drug haunted them.

Put: With earnest perseverance they undertook further investigations, which resulted in an astonishing contribution to organic chemistry. Unfortunately this accomplishment has not been recognised even today. The process is as follows: From the pulverised powder (mixture with the herbal juice), cakes were made and sun dried. These sun-dried cakes are kept in an earthen saucer (sarava) which is covered with another earthen saucer of the same size. The joints are sealed with a mud layered cloth and sun dried. These are then placed in a pit furnace, covered with cowdung cakes and fired. This heat helps in the thermochemical process that takes place within the saucer. The furnace is allowed to cool to room temperature. The lumps in the saucer are scooped out and further triturating results in the bhasma of that particular substance. The whole process is called marana. During this process the metal powder is converted to an organo metal or organo metal complex.

The herbal drugs have imparted their own specific character to the metals. Ultimately a safe metallic bhasma is evolved. Perhaps modern chemistry might explain the process as follows: carbon, nitrogen and sulphur are electron donors of elements. When carbon donates electrons to a metal, a ring like organometallic

compound is formed. If it is not a ring like structure, then it is an organometallic complex. Chelation has taken place.

These drugs were tried on human beings and the therapeutic properties were studied and recorded. To ensure that these drugs do not cause any adverse effects, they had to pass through strict quality tests.

Standards for the Bhasma:

- A. Varitara tests: A pinch of the bhasma is spread over the surface of water in a glass jar. The particles should not sink but must float on water. As a confirmatory test to the microfineness of the bhasma, when a grain of corn is placed on the floating particle, the particle should not sink.
- B. Niruttha test: This is also called the non-revivability test. The prepared bhasma mixed with mutra-panchaka drugs like ghee, gunja, honey, borax and guggulu and heated to the temperature at which the bhasma was made shall remain unchanged.

The offshoots of these experiments was the development of many chemicals procedures and also many metallurgical techniques, methods of purification, calcination, distillation, sublimation apparatus for underground cooking (bhudara-yantra), apparatus for steam fomentation (svedana-yantra), extraction of metals from their ores, the heat treatment of metals, etc. were developed.

Thus Rasa-sastra developed as a compact system. Herbal drugs gave way to molecular drugs. Thus, although the ancient scientists faltered in their endeavour to turn metals to gold, they succeeded in achieving deha siddhi.

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ABBREVIATIONS & MAJOR REFERENCES

- AHr Ashtāṅga-hṛdaya (Vagbhata, ed. A.M. Kunte, NS, Bombay, 1891).
AMD Āyurveda-mahodadhī- an- napana-vidhī (Sushena, ed. S. Venkatasubrahmanya Sastri).
AP Āyurveda-prakāśa (ed. with comm. by Gulraj Sharma Miśra, C, Varanasi, 1962).
ARH Āyurveda-rasāyana (Hemadri on AHr).
AS Ashtāṅga-samgraha (Vagbhata, ed. Atrideva Gupta, NS, Bombay, 1951, with Hindi translation).
ASK Āyurvedīya-śabda-kosha (Veṇimādhav-śastri Joshī, Nārāyaṇaharī Joshī, Bombay, 1968, in 2 volumes).
ASS Ānandaśrama Sanskrit Series, Pune.
BP Bhāva-prakāśa (Bhāvamiśra).
BPN Bhāva-prakāśa-nighaṇṭu.
BR Bhaishjya-ratnavali (ed. Govindadasa, Calcutta, 1893).
C Chowkhambha Series, Varanasi.
Chkp. Chakrapaṇi-datta (comm. on CS).
CS Charaka-samhita (ed. Yadavji Trikuṃji Acharya, NS, Bombay, 1941).
CSS Chikitsa-sāra-samgraha (Vanga sena, Calcutta, 1884).
CSSS Charaka-samhita: a scientific synopsis (P. Ray, et.al., Indian National Science Academy, New Delhi, 1965, 1980).
DN Dhanvantari-nighaṇṭu (ASS, Pune, 1927, includes RN).
HHC History of Hindu Chemistry (P.C. Ray, Calcutta, 1902 and 1925, in 2 volumes).
HS Hārīta-samhita (Calcutta, 1887).
IMM Indian Materia Medica (N.M. Nadkarni, Popular Prakashan, Mumbai, revised and enlarged, 1976, in 2 volumes).
KS Kāśyapa-samhita (ed. Hemraj Sharma, C, Varanasi, 1953).
MI Minerals of India (D.N. Wadia, National Book Trust, India, Reprint Edition, 1988).
MMH Materia Medica of the Hindus (U.C. Dutta, Calcutta, 1922).
MPN Madana-pala-nighaṇṭu (Madana-pala).
NiS Nibandha-samgraha (Dalhana, on SS, NS, Bombay, 1915).
NS Nirṇaya-sāgar-press, Bombay RJN Rasa-jala-nidhi (Bhudev Mookerjee, Calcutta, 1926).

- RN Rāja-nighantu (Abhidhāna chintāmani, ASS, Pune).
- RRS Rasa-ratna-samucchaya (ed. Dattātreyā Ananta Kulkarni, New Delhi, 1982, Vol.I, Dharmānanda Sharma, Motilal Banarsidass, 1958).
- RSS Rasendra-sara-samgraha (ed. Naren-dranath Mitra, Motilal Banarsidass, 1976).
- RT Rasa-tarangini
- SaS Sārngadhara-samhita (ed. Paraśurama-sāstrī, NS, Bombay, 1931).
- SdS Siva-dasa-sena
- SN Śāligrama-nighantu (Lālā Śāligram, Varanasi, 1891).
- SS Suśruta-samhita (ed. Yadvaji Trikuṃjee Acharya, C, 1960).
- SSS Suśruta-samhita : a scientific synopsis (P.Ray, et. al., Indian National Science Academy, New Delhi, 1980).
- VSS Vaidyaka-śabda sindhu (Umesh Chandra Gupta, Calcutta, 1894).
- YR Yoga-ratnākara (ASS, Pune, 1889; Mysore, 1899 in Kannada ch., with Kannada and Telugu Translations).

- RN Rāja-nighantu (Abhidhāna chintāmani, ASS, Pune).
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- SdS Siva-dasa-sena
- SN Śālīgrama-nighantu (Lālā Śālīgram, Varanasi, 1891).
- SS Suśruta-samhita (ed. Yādavji Trikuṃjee Acharya, C, 1960).
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Metallic and Mineral Drugs

Abhrakam

Synonyms: Gaganam, Vimalam, Śubhram, Nirmalam, Parvatodbhūtam, Bhṛṅgam, Bahupatram, Gowrijam,

Description: Mica, the layers of which can be easily detached, which is unctous (as if smeared with oil), heavy, resembles anjana in appearance and which does not alter when thrown into fire is to be preferred. Mica which is found in the mountain ranges of the south are generally inferior in quality. (RRS, 2, 11; AP, 2, 98-99).

Varieties: Mica is of four kinds based on the colour — (1) white, used in leucoderma, (2) red, used in purifying the blood, and as a rejuvenative, (3) Yellow, used in jaundice, etc., and (4) black.

Although all the four varieties are used in medicine, the black variety is considered to be the best. (RRS, 2, 9-10).

There is another classification, based on its response when subjected to the heat of the fire (RRS, 2, 4-8):

The variety of mica, the layers of which separate when cast into fire is known as Pināka. This is poisonous and causes severe constipation.

Another variety of mica, known as Nāga produces a hissing sound if it is introduced into fire. This mica causes maṇḍala-kushṭha if it is administered internally.

The variety of mica known as maṇḍūka-abhraka, when cast into fire, leaps up and down, like a frog. This mica causes a severe type of urinary calculi that is only amenable to surgical measures.

Yet another variety of mica, known as Vajra-abhraka is not influenced in the least, when cast into fire. This mica can be used for medicinal purposes, and renders the body as strong as steel.

Medicinal Action:

Rasa : Astringent and sweet
Guṇa : Unctous
Vīrya : Cold

It alleviates all the three doshas, is an excellent rejuvenative, strengthens the body and mind, destroys all diseases (by enhancing the immunity), is aphrodisiac, appetizing, digestive and is useful in tuberculosis, anaemia, sprue, dyspnoea, abdominal colic, jaundice, fever, urinary disorders (including diabetes), cough, skin diseases and haemorrhoids, (RRS, 2, 51; AP, 2, 101-102).

Diet: A person being administered abhraka should avoid sour and alkaline food, pulses, karkaṭī (Luffa echinata Roxb), kāravellaka (bitter gourd), brinjal, karīra (Capparis decidua), kola and til oil, (AP, 2, 140).

Note:

1. Before being used, it should be subjected to purification procedures, by which it will be deprived of its glaze, (RRS, 2, 13).
2. Abhraka bhasma of good quality is reddish-brown in colour and devoid of glaze. (AP, 2, 105).
3. Abhraka bhasma is best administered in dosages of $1\frac{1}{2}$ gunja along with trikaṭu, viḍanga and ghee, (ibid, 2, 51).
4. Even if used without anupāna, abhraka bhasma is an excellent rejuvenative. But for the purpose of curing diseases, suitable anupāna are prescribed.

Abhraka bhasma if taken with turmeric, pippali and honey, cures all varieties of urinary disorders; with suvarṇa bhasma, tuberculosis and wasting; with juice of guḍūchi and sugar-candy, urinary disorders (including diabetes); with pippalī and honey, eye diseases (and defective eye sight); with mūrvā-sattva, ulcers; with bhallātaka, haemorrhoids and skin diseases; with vijayā, premature ejaculation; with cow's milk and sugar,

diseases of pitta; with harītaki and guḍa (jaggery), gout; and with lavanga and honey, it is a good tonic, (RJN, II, pages. 38-40).

5. Abhraka bhasma is rubbed for six hours with equal amounts of āmalakī, trikaṭu, vidāṅga and water, and made into small pills and dried in the shade. A person who takes one pill daily for a year, two pills daily for the next year and three pills daily for the third year, acquires a body that is as strong as a diamond. By partaking of these pills daily for three months, diseases such as tuberculosis, dyspnoea, cough, chest pain, sprue, haemorrhoids, rheumatism, emaciation, anaemia and all skin disease are cured, (AP, 2, 166-172).
6. Abhraka bhasma is to be taken with turmeric powder, śatāvārī and honey in urinary disorders (including diabetes); with kānta-loha bhasma and butter for enhancing the complexion and bestowing immunity; with rock salt, drākshā, pepper and hot water in all forms of indigestion; with pippalī and vibhītaki in vitiated kapha; with rasa-sindūra, suvarṇa bhasma and ginger juice in tuberculosis, severe jaundice and anaemia; with harītaki and cow's urine in anaemia, swellings and severe jaundice; with vajra bhasma and kastūri in greying and falling of hair and as a rejuvenative; with pippalī and sugarcandy in fevers engendered by vāta and pitta; with chaturjāta for three days in sannipāta and haemorrhages; with vāsā juice in cough, dyspnoea, piles and herpes; with bhallātaka in haemorrhoids; and with mustā and ginger in all kinds of diarrhoea, (Basavarājīya, 25, 435).

Toxic Effects: Abhraka which is not deprived of its glaze may cause urinary diseases (including diabetes), indigestion, skin diseases, knotty tumours, anal fistula and even death. (RRS, 2, 13; AP, 2, 103).

Antidote: A paste of āmalakī fruit and water should be partaken of for three days, (RJN, II, page.43).

Śodhana: Abhraka should be strongly heated and then immersed in a vessel containing kānjī or cow's urine or a decoction of triphala or cow's milk. This should be done seven times, (RRS, 2, 16-17). It should then be transformed into what is referred to as dhānyābhraka.

"Mica which has undergone śodhana should be pulverised and mixed with paddy and made into a bundle which is immersed in a vessel containing kānjika. This bundle is then to be rubbed with the hands with the result that fine particles of mica are deposited in the vessel. This is called dhānyābhraka," (ibid, 2, 21).

Māraṇa:

1. Dhānyābhraka should be rubbed with the juice of kāsamarda or of mustā or of taṇḍulīya and made into a flat cake and subjected to heat by gaja puṭa ten times, (ibid, 2, 22).
2. Dhānyābhraka is given bhāvanā with an equal quantity of guḍa (jaggery) and leaf juice of eraṇḍa (castor). It is then enclosed by castor leaves and subjected to puṭa. This process has to be repeated three times. Abhraka bhasma thus prepared is administered in dosages of ½ gunja, (ibid, 2, 26-27).

For the purpose of further purification, and for making sure that none of its poisonous effects are left behind, abhraka bhasma is further subjected to amṛtī-karaṇa.

Amṛtīkaraṇa:

1. Ten palas of abhraka bhasma are heated over a mild fire with sixteen palas of a decoction of triphala and eight palas of cow's ghee until the liquid portion has fully evaporated, (AP, 2, 136-137).

2. Abhraka bhasma can be heated in an iron vessel with an equal quantity of cow's ghee until the ghee has evaporated, (ibid, 2, 139).

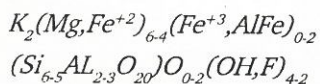
Comments:

Identification:

English	- Mica (a group of rock-forming minerals).
Hindi	- Avrak
Persion	- Talk
Arabic	- Kabubul-ars
Tamil	- Appirakam.

The black variety is biotite mica, which contains iron. The white variety contains silica, while the red and yellow varieties contain manganese and magnesium respectively (all in the form of oxides).

Biotite Mica:



Sodhana: The method described here is roasting mica in air and quenching in different quenching media, the object being the removal of adhering impurities.

Dhānyābhraka: Dhānyābhraka is a fine mica powder got by rubbing mica sheets after the sodhana process, with paddy in a bundle of cloth. While rubbing, flake mica is converted into the powder form. The fine mica powder which has passed through the pores of the cloth is collected for the māraṇa process.

Māraṇa: In this process the complex metallic oxide of iron present in the mica is reduced by carbon, which has been obtained by the destructive distillation of kāsam-arda, mustā, taṇḍulīya, guḍa, and juice of castor. During the gaja-puta process iron oxide is reduced to metal iron. So the resulting bhasma will consist mostly of iron with magnesium silicate.

Anjanam

There are five varieties of anjana:

1. Souvīrānjana (Stibnite)
2. Rasānjana (a herbal extract, from dāru-haridrā)
3. Sroto-anjana (black sulphide of Antimony).
4. Pushpānjana (Zinc oxide)
5. Nīlānjana (Galena, Lead sulphide). (RRS, 3, 98).

Śodhana:

1. All the anjanas are purified if given bhāvanā with the juice of the plant bhṛngarāja (Eclipta alba), (RRS, 3, 105).
2. They are also purified if they are powdered, subjected to bhāvanā with the juice of jambīra and then dried for one day in the sun.

Gairika, kāsisa, ṭankana, varāṭika, śankha and kankushta can also be purified in this manner, (RJN, II, page.206).

Satva-pātana: The essence of the anjanas can be extracted in the same way as that of manah-śila (realgar). (RRS, 3, 106).

Audbhida Lavaṇam

Synonyms: Pāmśujam, Ukharam, Vasu-kam, Sarvasaham (according to RN, Romaka is a synonym of 'Audbhida Lavaṇa' although SS mentions it as a different variety of salt).

Medicinal Action:

Rasa	: Salty, bitter and pungent
Guṇa	: Sharp and light
Vīrya	: Hot
	It alleviates vāta.

Comments:**Identification:**

Hindi - Khari-non, Khariya-namak
Kanada - Petluppu
Vernacular - Rehā, kalar

Occurrence: Reh, Usar or Kalar are the local names of a saline efflorescence composed of a mixture of sodium carbonate, sulphate and chloride, together with varying proportions of calcium and magnesium salts, found on the surface of alluvial soils in the drier districts of the Gangetic plains, and particularly in the northern parts of Uttar Pradesh, Punjab and Rajasthan.

Reh is found in the following parts of India:

Andhra Pradesh: Stretches of reh-covered soil occur in Guntur district and in Anantapur district. One sample from Kakinada in the East Godavari district contained 50-56 per cent sodium carbonate, 52-96 per cent sodium chloride and 16-48 per cent sodium sulphate.

Bihar: Different types of alkali salts are locally known as reh, saji matti and khari. They occur in Kharan, Champaran, Muzaffarpur and parts of Monghyr and Gaya districts.

Tamil Nadu: Reh which contains a large amount of sodium salts, collects as an efflorescence in the soil occurring in Salem district, Perambalur taluk, Tiruchirappalli district and in South Arcot and Ramanathapuram districts.

Uttar Pradesh: Extensive reh-covered tracts occur in Hasanpur, Moradabad district, along the western side of the Ganges in Muzaffarnagar district and in parts of Meerut district.

Ayaskṛtī

This is a method of processing iron, and other metals, described in SS.

Thin leaves of tīkshṇa-loha (steel) are to be smeared with a paste of the six salts (see

Lavaṇa) and heated strongly in a fire of dried cow-dung. When they are red hot, they are immersed in a decoction of triphala and śālasārādi drugs. This has to be done sixteen times. They are then to be burnt in a fire of khadira wood (sixteen times according to NiS) and after cooling, are finely powdered and filtered through a thick cloth. A small measure (starting with five gunjas, according to NiS) of this powder is firmly rubbed with honey and ghee and administered. Sour and salty food should be avoided. The use of a tulā measure of this powder relieves skin diseases, urinary disorders (including diabetes), diseases of medas, swellings, anaemia, insanity and epilepsy, and confers long-life, (SS, chikitsā, 10, 11).

A few other preparations of this kind, are recommended in tuberculosis and as rejuvenatives and are described in SS, (chikitsā, 10, 12).

Comments:

The five salts which are smeared on thin steel sheets when heated melt, act as a flux, and clean the metal surface.

Chandra-kāntah

Synonyms: Chandrapalah, Śītāśmā, Chandrikā-drāvah.

Description: It is an uparatna, is unctous, yellow-white in colour, soft and exudes moisture when exposed to the moon, (RN, 14, 65).

Medicinal Action:

Guṇa : Unctous
 Vīrya : Cold

It alleviates pitta, purifies the blood, is a heart-tonic and is useful in bleeding from internal organs, fever and burning sensation, (AP, 5, 143-144).

It can be used for medicinal purposes only after appropriate purification.

Comments:

Identification:

English - Moon stone, Cats eye
Hindi - Chandra-kāṇṭha-maṇi

Chapalam

Description: Chapala melts like tin when heated over a fire. Hence the name. Chapala is said to have the lustre of sphaṭika (rock crystal) and six faces, (RRS, 2, 136-138).

Varieties: There are four kinds of chapala: white, yellow, brownish and black. That which has the lustre of gold and silver is most appropriate for the fixation of mercury. The last two readily melt like lac and are useless.

Medicinal Action:

Rasa : Bitter and sweet
Guṇa : Heavy and unctous
Virya : Hot

It alleviates all the three doshas, is extremely aphrodisiac, emaciating and strength-giving.

Note: RRS (8, 41-44) has described two methods of extracting chapala from lead and tin:

“Thirty palas of nāga (lead) are powdered and a paste is made by adding a sufficient amount of milky exudation of arka (*Calotropis gigantea*). The paste is then subjected to heat by gaja puṭa. After it has cooled (svāṅga śīta), the same process is repeated and puṭas are given until only one tola of the residue is left. This substance will not be reduced in quantity even if administered a thousand puṭas. Such a substance is called chapala.

Chapala can also be extracted from tin (vanga) by a similar process. These processes were discovered by a king named Kharvaṇa.”

Comments:

Identification:

Chapalam: There is much uncertainty about the proper identification of chapalam. But the mode of extraction from lead (bismuth bearing lead) as described by Rasaratna-samucchaya suggests that it should only be bismuth.

The process is similar to cupelling bismuth bearing lead—the bismuth being removed at the end of the operation, whereas lead is converted into lead oxide and is removed intermittently.

The process adopted is to mix a milky exudation of plants with lead bearing bismuth and this is first melted by subjecting it to Gaja-puta a number of times. At first lead oxide (PbO) is produced and this is removed at each puṭa operation. Bismuth, which is also in a molten condition is not oxidised and hence remains at the bottom, even if it undergoes thousand puṭas.

Chūrṇam

Synonyms: Sudhā

Medicinal Action:

Chūrṇam alleviates vāta and kapha and is useful in obesity, heart-burn, pyrosis, sprue, ulcers and worms.

Chūrṇodakam is useful in pyrosis, abdominal colic, worms, diarrhoea, sprue and some cases of poisoning. It digests milk. It is very beneficial with milk in diabetes, (CS, sūtra, 1, 70; RT).

Comments:

Identification:

English - Lime, Quick lime, Calcium oxide (CaO)
Hindi - Chūnā

Persian	-	Āhak
Arabic	-	Kils
Kanada	-	Suṇṇa
Malayalam	-	Nūra
Malay	-	Kapor
Tamil	-	Sūnnāmbu
Telugu	-	Sūnnām

Occurrence: Limestone (Chūna ka pathar), as its name suggests, is the main source of lime. In the plains of India the only available source of lime is "Kankar", which occurs plentifully as irregular concretions disseminated in clays. The clay admixture in Kankar is often in sufficient proportion to produce, on burning, a hydraulic lime.

Lime is obtained by calcining lime-stone, the heat driving off the carbonic acid and leaving a brittle white solid which is pure. It generally contains 98 to 90% CaO.

Lime water (chūrṇodakam) is prepared by dissolving four karshas of chūrṇa in five śarāvas of water, and straining after six hours.

Dhātuh, Dhātavah

These refer to (1) the seven body constituents (Refer Vol.II) and (2) the seven metals which are suvarṇa (gold), rōpyam (silver), tāmram (copper), vangam (tin), yaśadam (zinc), sīsam (lead) and loham (iron).

These metals retard ageing, prevent balding and greying of the hair, are strength-giving, relieve fever and emaciation and give stability to the body.

Dugdha-pāshāṇakah

Synonyms: Gomeda-sannibhah, Vajrābhah, Dīptikah, Soudhah, Dug-dhī, Kshīra-yavah.

Medicinal Action:

Virya : Slightly hot

It alleviates pitta, is constipative, appetizing, styptic, promotes healing of wounds and is useful in fever, heart-diseases, cough, abdominal colic, flatulent distension of abdomen and diseases of the teeth, (RN, 13, 16-17; Rasāmṛta).

Comments:

Identification:

English.	-	Talc, soap stone, hydrated magnesium silicate ($3\text{MgO}, 4\text{SiO}_2, \text{H}_2\text{O}$)
Hindi	-	Dūdhīyā-khallī, Sang-jarāhat
Kanada	-	Baḷapada-kallu.

Occurrence: It is a hydrated magnesium silicate. It is a soft, crystalline, foliated or compact mineral of white, grey or pale green colour and has a greasy feel. The more compact as well as impure varieties are called soap stones.

It occurs in brownish-white or grey, flat irregular pieces, and is smooth and unctous to touch. It is insoluble in water, tasteless and easily pulverizable.

Gairikam

Synonyms: Rakta-dhātuh, Tāmra dhātuh, Gavedhuka, Giri-dhātu

Varieties: There are two varieties.

1. Pāshāṇa-gairika, which is hard and copper coloured.
2. Svarṇa-gairika, which is soft, unctous and blood-red.

The latter is considered to be more useful and effective than the former. (RRS, 3,46-48).

Medicinal Action:

Rasa	:	Sweet and astringent
Guṇa	:	Unctous (dry according to A.P.)
Virya	:	Cold.

It alleviates kapha and pitta, antidotes poison, purifies the blood, improves eye-sight, is styptic, and is useful in fevers, hiccough, haemorrhages, burning pains, burns, haemorrhoids, boils and vesicles, pruritus, herpes, vomiting and ulcers, (CS, sūtra, 1, 70; 4, 18, RRS, 3, 48).

Note:

1. It is recommended as an external application in herpes and skin diseases, (CS, sūtra, 3, 5; chikitsā, 21, 42).
2. It is useful in bleeding from internal organs (CS, chikitsā, 4, 73, 79) and in vomiting caused by vitiated pitta, (ibid, 20, 33).
3. It is valuable in hiccoughs, (SS, uttara, 50, 19).
4. It is employed in burns to relieve pain and thirst, (SS, sūtra, 12, 23) and as collyrium in eye-diseases, (SS, uttara, 12, 17).
5. It is given with honey in fevers caused by pitta; with sugarcandy and ela in haemorrhages and with kânji in doses of one-fourth of a tola, four times a day, in śīta-pitta (urticaria). It is applied with ghee in herpes engendered by pitta and with coconut oil or ghee in burns. (RJN, II, page. 147-148).

Śodhana:

1. Gairika can be purified by subjecting it to bhāvanā with cow's milk. (RRS, 3, 49).
2. It can also be purified by roasting it with a little amount of cow's ghee. (AP, 2, 272).

Comments:

Identification:

English	- Red ochre, Haematite (natural Fe_2O_3)
Hindi	- Geru
Persian	- Surkh

Arabic	- Magra
Bengali	- Giri

Occurrence: A natural earth-substance made up chiefly of iron oxide in colours varying from yellow to dark-red and brown.

Varieties: This depends upon the impurities present and also on the mode in which the aggregates are formed.

Giri-sindūram

Medicinal Action:

It alleviates all the doshas, is purgative, strengthens the body and improves vision, (AP, 2, 342).

Comments:

Identification:

English	- Red-oxide of mercury
Hindi	- Sipichand

Occurrence: It is said to occur within rocks in mountainous areas. It is described as being dry and red in colour, (DN, 3, 103). It is said to resemble hingula in appearance, (AP, 2, 342).

Godanti

Medicinal Action:

Virya : Cold

It alleviates pitta, is appetizing, strength-giving, and is useful in acute and remittent fever, dyspnoea and cough (RT).

Comments:

Identification:

English	- Gypsum
Hindi-	- Godanti

Occurrence: *Natural calcium sulphate ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$), is a crystalline or massive substance without colour. It occurs abundantly in nature in sedimentary formations.*

Gandhakah

Synonyms: Kushthīrih, Gandha-pāshāṇah, Lelīnah, Gandha-madanah, Pūtigandhah, Balī, Dhātuhā, Divyagandhah, Kītaghnah, Śārabhūmitah, Balivasā.

Varieties: There are four kinds of sulphur:

1. White, which is used for external application.
2. Red, which resembles the beak of a parrot and is considered the best.
3. Yellow, (also called amalāsārah) mostly used in medicine.
4. Black which is rare and delays ageing. (RRS, 3, 14-16).

The best gandhaka is that which has the colour of a parrot's beak, has the appearance of fresh butter, is unctous, smooth and hard, (RRS).

Medicinal Action:

Rasa : Pungent, sweet and astringent
 Guṇa : Sharp
 Vīrya : Hot
 Vipāka : Pungent

It alleviates kapha and vāta, aggravates pitta, antidotes poison, bestows long life, is appetizing, digestive and is useful in skin diseases, tuberculosis, enlargement of spleen, pruritus, worms, herpes and scabies.

Diet: A person who is being administered gandhaka should avoid sour, acidic and fried food articles, salt, alcoholic drinks, pulses, sexual intercourse and travel and should partake of milk and rice. (AP, 2, 34; RJN, II, page.143; RRS, 3, 36).

Note:

1. Sulphur is to be purified before being used for medicinal purposes.
2. It is extremely valuable in skin diseases. (CS, chikitsā, 7, 71).
3. It is used as a collyrium in eye-diseases. (ibid, 17, 125).
4. Purified gandhaka, if taken every morning, in doses of one śāṇa (one-fourth of a tola) with triphala, ghee, juice of bhṛngarāja (Eclipta alba) and honey confers long life and clear eye-sight. (RRS, 3, 26).
5. Pure gandhaka, if taken with a ripe banana, relieves skin diseases; with chitraka (Plumbago zeylanica), loss of strength; with the juice of vāsā (Adhatoda vasica), tuberculosis and cough; with decoction of triphala, loss of appetite and all diseases of the eye, head, mouth and ear. If taken in a dosage of one nishka for six months with milk, pure gandhaka increases strength, cures all diseases and confers longevity and good eyesight, (AP, 2, 35).
6. Purified sulphur, five palas in quantity is to be finely powdered, saturated with three times its weight of the juice of bhṛngarāja and dried in the shade. To this, one pala each of abhayā (Terminalia chebula), honey and ghee are added. The total quantity is to be taken in the course of two months. This is an excellent rejuvenative, (ibid, 37).
7. Purified sulphur, finely powdered, is to be taken in doses of one karsha with sesamum oil (til oil). The person has at the same time to bathe regularly with hot water. This is very useful in skin diseases and also as a rejuvenative, (AP, 2, 38).
8. If purified and finely powdered gandhaka is taken with an equal quantity of pippalī and harītakī, it bestows good health and perfect eye-sight, (AP, 2, 39).

9. Preparation of gandhakadruti: Purified and finely powdered gandhaka with one fourth its quantity of trikaṭu is strewn over a piece of cloth, one aratni (about one and a quarter foot) in length and breadth. This cloth is then wound up in the form of a candle, and tied with a string. It is then immersed in til oil for three hours. This candle is then caught hold of by forceps and one end of it is on set fire over a glass vessel, which collects drops of sulphur. Three drops of this oil are rubbed with the tip of the finger with one valla of purified mercury, on a clean betel leaf. This leaf is then to be administered in cases of tuberculosis, anaemia, cough, dyspnoea, colic, sprue and anorexia (RRS, 3, 27-31).
10. Pure gandhaka is smelted in an iron-pot which is smeared internally with ghee. It is then taken out with a ladle which is also to be smeared with ghee. This sulphur is to be administered in doses of two nishkas in tuberculosis, skin diseases, etc. (ibid, 32-33).
11. Purified gandhaka is rubbed with an equal amount of maricha (black pepper), six times its weight of triphala and the juice of the root of āragvadha (Cassia fistula). This is very useful in all skin diseases, (ibid, 33-34).
12. Pure sulphur is triturated with half its quantity of purified mercury, with the help of the juice of aloes for a day, and made into small pills. These pills are confined within an andha musha (blind crucible) and subjected to puṭas. If these are then regularly partaken of for a month with honey and ghee, they indefinitely postpone ageing and bestow good health, (AP, 2, 57-58).

Toxic Effects: Impure gandhaka brings about diseases of vitiated pitta, skin diseases, fever and vertigo and depletes strength, lustre and immunity, (DN, 3, 113; AP, 2, 18).

Antidote: Milk if taken with cow's ghee acts as an antidote.

Śodhana:

1. Gandhaka is to be melted and poured into a vessel containing the juice of bhṅgarāja. It is then taken out, powdered and boiled with the same juice. This process has to be repeated seven times, (RRS, 3, 23).
2. Gandhaka is to be smelted with cow's ghee and then filtered through a piece of cloth which covers the mouth of a vessel filled with milk. It is then to be boiled with the milk for 24 minutes and later washed with water. Gandhaka is thus purified and is in the form of lumps. The mud etc. would be left behind on the cloth, while its poisonous properties will be antidoted or transformed by the ghee, (ibid, 20-22).

Deodorization of Sulphur: Powdered sulphur is to be boiled with milk until it is condensed. It is then to be boiled with a juice of sūryāvarta, and then again with the decoction of triphala. Thus treated, sulphur is deprived of its odour, (AP, 2, 32-33).

Comments:

Identification:

English. - Sulphur, Brimstone
 Persian - Gowgird
 Arabic - Kibrika
 Kanada - Gandhaka

Occurrence: Sulphur occurs in its natural state as glistening yellow crystals. It also occurs in combination with other metals as sulphides, such as the golden yellow iron-sulphide (pyrite), the bronze-yellow iron-copper-sulphide (chalcopyrite) and the silver-white lead-sulphide (galena). In the absence of native sulphur deposits, the sulphides are important as a source of this valuable substance.

Except the small quantities of sulphur obtainable as a sublimation product from the crater of Barren Island Volcano in the Bay of Bengal and from the Puga Valley of Ladakh, the sources of natural sulphur in India are almost negligible.

Varieties: The four kinds are the allotropic modifications of sulphur. Only two varieties are available. The yellow variety is vitreous sulphur while the white variety is ordinary roll sulphur.

Śodhana:

1. Repeated treatment of sulphur with *bhrngarāja* juice may complete the reaction between them probably forming chelates (combination of some organic compound with inorganic substance).
2. Unwanted, harmful impurities are removed by this method.

Gomedakah

Synonyms: Tamo-manih, Pingah, Sphati-kah

Occurrence: Gomedaka which has the colour of cow's urine, is soft, unctous, clear, lustrous and heavy is of a good variety.

When put in milk if it imparts to it the bright yellow colour of cow's urine, and which retains its lustre even when it is rubbed, is considered to be of good quality. (RN)

Medicinal Action:

Rasa : Sour
Virya : Hot

It alleviates kapha and pitta, is appetizing, digestive, increases intelligence, is strength-giving, and is useful in tuberculosis, anaemia, skin-diseases, and mental backwardness. (RN, 4, 57-60).

Note:

1. It is employed with benefit with buttermilk in dysuria and urinary disorders (including diabetes). (CS, sūtra, 23, 15).

Gowrī-pāshāṇah

Synonyms: Somalah, Pīṭah, Vikāṭah, Hatachūrṇakah, Phenāśmah, Śankha-vishah, Mallah, Mūsha-kah.

Varieties: According to RRS it is of three kinds — (1) Sphaṭikābha, crystal-like, (2) Śāṅkhābha, resembling a conch-shell, and (3) Haridrābha, resembling turmeric, (RRS, 3, 130).

According to AP, it is of two kinds — (1) a white variety which is manufactured, and (2) a yellow variety which occurs naturally, (AP, 2, 337).

Medicinal Action: It alleviates kapha and vāta, confers longevity, is an aphrodisiac, strength-giving and is useful in dyspnoea, fever with chill, anaemia, syphilis, elephantiasis, rheumatic pains and skin diseases.

Diet: A person being administered arsenic should avoid sour, pungent and sharp (tikshṇa) food substances.

Śodhana: Gowrī-pāshāṇa has to be confined inside a large kāravella (bitter gourd) fruit and boiled in water (for three hours, in a dolā-yantra), (RRS, 3, 125).

Extraction of Essence: The essence of gowrī-pāshāṇa is extracted in the same way as that of haritāla (orpiment), (ibid, 126).

According to RJN, haritāla, rubbed with castor oil and lemon juice, and heated by a vāluka-yantra, discharges red gowrī-pāshāṇa as its essence, (RJN, II, page.213).

Comments:**Identification:**

- English - Arsenic
 Hindi - Sānkhiya
 Persian - Marg-mūsh
 Arabic - Sammul-phār
 Marathi - Somal-khār
 Bengali - Śankha-vish
 Kanada - Śankha-pāshāṇa

Occurrence: The metal arsenic is widely distributed in nature, but in small quantities. It is found to occur naturally also.

Varieties: This is due to the difference in the state of aggregate formation.

Extraction of Essence:

1. When gowrīpāshāṇa is heated in a closed vessel at a high heat, arsenic is condensed and recovered.
2. Arsenic is also obtained by distillation of gowrīpāshāṇa.
3. Arsenic gets deposited over copper. When cooled, white soft arsenic is scrubbed and collected.

Haritālam

Synonyms: Godantam, Pīṭakam, Naṭa-maṇḍakam, Viḍālam, Gowram, Pinjaram, Chitra-gandhakam, Ālam, Tālakam, Kānakarasam, Kanchanakam.

Varieties: There are two kinds of haritāla—(1) Patra-haritāla, which is in thin layers, smooth, shining, gold coloured and glazy, and (2) Piṇḍa-haritāla, which occurs as fine, opaque, heavy lumps. Of these, the former is considered best for medicinal purposes, (RRS, 3, 71-72).

Medicinal Action:

- Rasa : Pungent and astringent
 Guṇa : Unctous
 Virya : Hot

It alleviates kapha and vāta, bestows lustre and long life, antidotes poison, purifies the blood, is appetizing, a sedative, auspicious and is useful in pruritus, ulcers, skin diseases, diseases of the mouth, dyspnoea, cough, tuberculosis and bleeding from internal organs, (RRS, 3, 73; DN, 7, 119-125; RN, 13, 58-60).

Diet: A person being administered haritāla should partake of sweet and oily food while avoiding alkaline, sour and pungent food articles.

Note:

1. It is valuable in various skin diseases, (CS, sūtra, 3, 4-5).
2. It is useful in haemorrhoids and ulcers, (SS, sūtra, 38; chikitsā, 1, 6, 11).
3. Half a gunja of haritāla-bhasma, taken with six parts of sugarcandy is said to cure the eighty diseases of vāta, diseases of pitta, kapha, urinary disorders, skin diseases and haemorrhoids, (SN).
4. It is useful for fumigation in cases of cough, (CS, chikitsā, 18, 69).
5. It is valuable when used for gargling in diseases of the throat, (CS, chikitsā, 26, 196-197).
6. It is employed externally in cases of leucoderma, (SS, chikitsā, 9, 27).
7. Haritāla-bhasma can be administered in doses of one-eighth of a ratti with milk, (AP, 2, 207).
8. Haritāla-bhasma is given with the juice of āmra-haridrā in diseases of impure blood; with purified aconite and jīraka (cumin seeds) in epilepsy; with samudraphala in ascites, with the juice of devadāli in anal fistula and syphilis,

with a decoction of manjishtha, etc. in skin diseases; with triphala and sugarcandy in anaemia and jaundice; with ginger powder in intractable cases of rheumatism; with suvarṇabhasma in haemorrhages; and with the juice of taṇḍuliya in fever, (RJN, II, page. 181-182).

9. Haritāla-bhasma should not emit smoke when put on the fire, (RJN, II, page.180).

A person being administered haritāla should avoid sour, salty and pungent foods and exposure to the sun, while partaking of sweet food articles and rock salt. (BP; AP, 2, 191-192).

Toxic Effects: Impure haritāla causes diseases of kapha and vāta, dysuria, skin diseases, fever, contraction and deformity of the limbs, vomiting, burning in the chest and even death. (AS, uttara, 40; RRS, 3, 75; DN, 7, 126-127).

Antidote:

1. Ajāji (jīraka) can be taken along with sugar for three days, (RJN, II, page.193).
2. The juice of yavasa or kūshmāṇḍa or rāja-hamsa also serves to antidote haritāla, (ibid).

Śodhana:

1. Patra-haritāla should be powdered and boiled with the juice of kūshmāṇḍa or with a solution of kshāra of the tila plant or with lime water (chūrṇodaka), in a dolā-yantra, (RRS, 3, 70).
2. It is also purified if it is boiled in a dolā-yantra with a decoction of triphala, (RJN, II, page 161).

Māraṇa:

1. A decoction of the root of palāśa is prepared, and this is heated till it attains the consistency of honey. Haritāla which has already undergone śodhana

should be subjected to bhāvanā with this liquid, three times. It is then made into a paste with buffalo's milk, and subjected to heat by puta. This process has to be done twelve times, after which haritāla bhasma of a good quality is obtained, (RRS, 3, 74-75).

2. One pala of purified haritāla is to be rubbed with the juice of kanyā (Aloe vera), dried, kept within a samputam, and heated for 36 hours. It has to be removed after it has cooled (svānga-śīta), (RJN, II, page. 167).

Sattva-pātana (Extraction of the Essence):

1. Haritāla has, first of all, to be subjected to bhāvanā with a decoction of kulattha, ṭaṅkaṇa (borax), buffalo's ghee and honey. It has then to be made into a ball, dried, placed in a vessel, which is to be covered with a basin which has holes in it. The holes in the basin have to be closed using cow dung. The vessel has then to be heated over a fire which is gradually increased in intensity. After three hours of heating, the holes have to be uncovered. The heating has to be stopped when pale coloured smoke (pāṇḍura) emerges from the holes. When perfectly cooled, the vessel has to be opened, and the essence collected, (RRS, 3, 76-79).
2. If haritāla is incinerated by means of a tiryak-pātana yantra, a kind of white essence is obtained. This has to be used in doses of one sarshapa a day. (RJN, II, page. 186)
3. Two palas of purified haritāla are to be loosely confined within a piece of strong, white cloth. Sulphur (made into a paste with lemon juice or cow's urine) is to be smeared over the cloth and dried. This has to be done three times. The bundle is then to be immersed in twelve tolas of melted copper, and immediately covered

over with ash. After the copper has cooled, the white soft essence of haritāla which adheres to the copper is collected, (RRS, 3, 86-87).

The essence of haritala is extremely useful in many diseases including gout of an obstinate kind.

Comments:

Identification:

- English - Orpiment, Arsenic trisulphide (As_2S_3)
 Hindi - Haratal
 Persian - Zarniph asphar
 Arabic - Zarnikhe-jard

Occurrence: Orpiment occurs in calcareous shales and marble in close proximity to dykes of basic intrusive rock. Orpiment and realgar are found in the morain-material of the Shunkalpa glacier in the Kumaon mountains.

Sattva-pātana: These processes explain the distillation of arsenic. In the third process, a chemical reaction takes place at $1100^{\circ}C$, where arsenic trisulphide (As_2S_3) is converted into arsenic which is deposited on the copper when cooled.

Haritāśmam

Synonyms: Perojam

Varieties: There are two varieties — (1) Bhasmāngam (ash coloured) and (2) Haritam (green coloured), (RN, 14).

Medicinal Action:

Rasa : Astringent and sweet.

It is auspicious, appetizing, antidotes all poisons and relieves abdominal colic, (RN, 14, 66-67).

Comments:

Identification:

- English - Turquoise
 Persian - Peroja

Occurrence: It is considered to be an uparatna. It is found in Iran and Southern India.

Hingulam

Synonyms: Daradam, Mleccham, Chūrṇa-pāradam, Maṇi-rāgakaram, Chit-rāngam, Barbaram, Raktam, Surangam.

Preparation: The preparation of cinnabar from sulphur and mercury has been described in AP:

Impure mercury is heated over a mild fire in an iron vessel with four parts of (impure) sulphur. To this is added the powder of manahsila (realgar), one-tenth the quantity of mercury. The contents of the vessel are to be continuously stirred until the vessel cools, and then broken into small pieces which are confined in a glass bottle. The bottle is then enclosed by mud and cloth, up to one angula in thickness, and dried in the shade. This is then heated over a fire of gradually increasing intensity for five days. The bottle is opened one week after this, to collect hingula of good quality, (AP, 2, 78-82).

Varieties: There are two varieties of hingulam — (1) Hamsa-pāda, which is red like coral or the japa flower, with white streaks here and there, and (2) Sūka-tuṇḍa, which is yellowish. The latter is considered less useful, and is referred to as charmāra, (RRS, 3, 139).

Test of Excellence: That hingula which has the colour of red hibiscus, is lustrous and heavy is considered to be of good quality.

Medicinal Action:

Rasa	: Sweet, bitter, pungent and astringent
Vīrya	: Hot
Vipāka	: Pungent

It alleviates all the doshas, especially kapha and pitta, antidotes poison, confers longevity, is an aphrodisiac, appetizing, improves eyesight and is useful in all forms of fevers, in skin diseases, jaundice, nausea, enlargement of spleen, rheumatism, herpes and eye-diseases, (RRS, 3, 150; DN, 6, 40-43; RN, 13, 47-49).

Toxic Effects: Impure hingula gives rise to blindness, emaciation, urinary disorders, skin diseases, impotence, fatigue, vertigo and syncope, (AP, 2, 73; RJN, II, page.232).

Antidotes: The same as for mercury.

Śodhana:

1. Hingula has to be subjected to bhāvanā with ginger juice or juice of lakucha seven times. It has then to be thoroughly dried, (RRS, 3, 142). Buffalo's milk and juice of the amla-varga can also be used for giving bhāvanā, (ibid, 143).
2. Hingula is also purified if it is boiled for three days in a dolā-yantra with the juice of jayantī leaves, or in urine, or in kânji, or in lemon juice, (RJN, II, page. 227)

Sattva-pātana (Extraction of the Essence):

This is the process of downward sublimation of mercury.

Pure hingula has to be subjected to the process of (adhah-) pātana by which the essence in the form of mercury is obtained, (RRS, 3, 144).

Comments:**Identification:**

English	- Cinnabar, sulphide of mercury (HgS)
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Hindi	- Singaraph, Hingūl
Persian	- Sāngarph
Kanada	- Inguliyaka
Malayalam	- Chayilyam
Tamil	- Lingam
Telugu	- Ingilikam

Occurrence: Natural sulphide of mercury in the form of red or brown crystals occurs in many parts of the world, especially in China, Spain and Dardisthan (the mountainous region around Kashmir).

Hīrakam

Synonyms: Vajram, Bhiduram, Indrāyudham, Kulisām, Pavih, Bhārga-vakam, Abhidhyam, Shaḍ-koṇam, Varāham.

Varieties: There are four varieties based on the colour: white, red, yellow and black.

There is another classification which describes the diamond as being of three kinds— (1) male, which is brilliant, with the play of rainbow colours, (2) female, which is flattened and rounded, and (3) neuter, which is rounded, obtuse-angled and slightly heavy, (RRS, 4, 27-28).

Description: That gem which does not come off in flakes or powder when rubbed against a whetstone, and which when beaten by an iron-hammer will not even be scratched, and which can easily scratch the other metals is the most valuable of all diamonds. (RN)

‘All the older writers agree in describing the diamond as having six angles, eight faces and twelve edges,’ (HHC).

Medicinal Action:

Rasa : All the six rasas

It alleviates all the three doshas, enhances intelligence and eye-sight, confers longevity and health, is an aphrodisiac, prevents greying of hair and is useful in tuberculosis, urinary disorders, obesity, anaemia, swellings, ascites,

sterility and impotence, (RRS, 4, 33; RN, 13, 58-61; DN, 6, 56-59).

Note: It is valuable in skin-diseases, and in enhancing immunity, (CS, chikitsā, 7, 72).

Toxic Effects: If used without purification, it causes skin diseases, tuberculosis, anaemia, chest pain, pain in the sides, and many other serious diseases, (DN, 6, 59).

Śodhana: It is to be boiled for three hours in a decoction of kulattha or kodrava, in a dolā-yantra, (RRS, 4, 34).

Māraṇa:

1. Manahśila (realgar) has to be rubbed well with a decoction of kulattha, and the fruit-juice of lakucha. A mūshā (crucible) is then to be smeared internally with this paste. The purified diamond is to be placed inside this crucible, and the latter is to be firmly closed with another crucible. It has then to be subjected to fire, by gaja-puta. This process has to be repeated eight times. The diamond has then to be heated well and dipped in purified mercury. This has to be done a hundred times. By this process good hīraka-bhasma is obtained, (ibid, 38-40).
2. Purified diamond is to be smeared with a paste of hingu (Ferula foetida) and saindhava-lavaṇa, heated strongly and immersed in a decoction of kulattha. This has to be done twenty-one times, (SaS, madhyama, 11, 83).

Comments:

Identification:

English	- Diamond
Hindi	- Hīra
Arabic	- Almas
Tamil	- Vairam

Diamond is pure carbon and it is the hardest of all minerals. Usually it is white or yellowish but other pale colours are not uncommon.

The localities noted in history as the chief diamond centres were Bundelkhand (for 'Panna Diamonds'); districts of Kurnool, Cuddapah, Bellary, etc. (containing the 'Golconda Diamonds'); and some localities of Central India such as Sambalpur, Chanda, etc. A certain proportion of diamonds was also obtained from surface-diggings and alluvial-gravel of the rivers of these districts. Diamond also occurs in Banganapalle in Kurnool district, Anantpur district, Guntur district and Bollaram.

Kācha-tilaka

Synonyms: Nilakāchodbhavam, Kācha-sambhavam, Kācha-souvarcha-lam, Kṛshṇa-lavaṇam, Pākyajam, Hṛdya-gandham, Kuru-vindam, Kṛtrimam.

Medicinal Action:

Rasa : Saline

It alleviates kapha and vāta, aggravates pitta, is alkaline, appetizing and relieves abdominal tumours and colic, (RRS, 19, 24-29; RN, 6, 44-46).

Comments:

Identification:

English	- Black salt
Marathi	- Vāngada-khār
Bengali	- Kṛshṇa-lavaṇ
Kanada	- Kācha-lavaṇa

Occurrence: A medicinal salt is prepared by calcining fossile salt and the fruit of the āmalaki together. It consists of muriate of soda with a proportion of sulphur, iron and lime, (VSS).

Kajjali

Description: The product is obtained by triturating mercury with an equal quantity of sulphur or any dhātu (without the addition of any fluid-medium) till it is smooth, soft and has the colour of lamp-black, (RRS).

The preparation of kajjali is supposed to have been first described by Chakrapāṇi (around 11th century AD): "Take one part of mercury and one part of sulphur, rub the two together in a mortar and thus prepare kajjali or rasaparpati." (HHC, Vol.1).

Action and Uses: It is an aphrodisiac, strength-giving and a tonic and when taken with the appropriate anupāna (vehicle) can cure most diseases.

Comments:

Identification:

Black sulphide of mercury.

Kāmsyam

Synonyms: Loham, Nijam, Ghosham, Prakāśam, Balam, Ghoshapushpam, Sourāshṭrikam, Kamsīyam, Vahni-lohakam, Dīptam

Occurrence:

Test of Excellence: That which emits a sharp sound when tapped, is smooth, unctous, white-coloured with a dark tinge, and which turns red when heated is considered fit for medicinal use, (RRS).

Varieties: There are two varieties—(1) Pushpakamsya, which is white in colour, and (2) Tāilika-kāmsya, which is whitish-yellow. The former contains more tin and is considered to be better when compared to the second variety.

Medicinal Action:

Rasa : Bitter and astringent
Guṇa : Light, dry and nonsticky (visada)
Vīrya : Hot

It alleviates kapha and vāta, is appetizing, digestive, strength-giving, an aphrodisiac, emaciating, improves vision and is beneficial in a number of ailments including enlargement of liver, haemorrhoids, skin diseases and worms.

Note:

1. Kāmsya seems to have been used in medicine since very ancient times since SS contains some references to it. (SS, sutra, 46, 363; uttara, 18, 49).
2. All food articles except ghee are said to acquire beneficial properties by being stored or eaten in vessels made of bellmetal, (RRS, 5, 208).

Occurrence: It is a kṛtrima (manufactured) dhātu. It is prepared by melting together six parts of copper and two parts of tin. (RRS, 5, 204-210).

Śodhana: Thin sheets of bell-metal are heated until they are red hot and dipped in juice of nirguṇḍi (Vitex negundo) or cow's urine, (RRS, 5, 210).

Māraṇa: The leaves are to be smeared with a paste of sulphur and haritāla (orpiment) and then subjected to gaja-puṭa, five times, (ibid).

Comments:

Identification:

English - Bronze (Bell-metal)
Hindi - Kamsa
Marathi - Kanse
Bengali - Kansa
Kanada - Kanchu

Kankushtham

Synonyms: Kāka-kushtham, Virangam, Kola-kākulam, Ranga-dāyakam. The identity of Kankushtham has not yet been fully established. But it is likely to be Magnesite, naturally occurring magnesium carbonate $O(MgCO_3)$.

Occurrence: It is found at the foot of the Himalayas (RRS, 3, 113).

Varieties: RRS says there are two varieties of kankushtham—(1) Nālika, which is heavy and unctous, and (2) Reṇuka, which is blackish-yellow, light and devoid of essence. Of these two, the former is considered to be most useful, (RRS, 3, 109-110).

BP describes two varieties of kankushtham—(1) rakta-kala which is heavy, unctous and yellowish in colour, and (2) aṇḍaka, which is light and blackish-yellow in colour. The latter variety aṇḍaka, is considered to be useless, (BP, pūrva, 6, 160).

Medicinal Action:

Rasa : Bitter and pungent
Vīrya : Hot

It alleviates kapha, enhances the complexion, is a purgative and is useful in ulcers, flatulence, abdominal colic, abdominal tumours, haemorrhoids, enlargement of the spleen, worms, swellings, ascites, distension of abdomen, constipation and obstinate rheumatism, (RRS, 3, 113; BP, pūrva, 6, 163; RJN, II, page 208).

Note:

1. Purified kankushtham has to be administered in a dosage of one yava, along with astringent and binding drugs for purposes of purgation. When so administered, it quickly relieves all diseases caused by āma (indigestion, (RRS, 3, 115).
2. If it is administered with betal-leaf, it engenders death by purgation, (ibid).

Antidote: In order to antidote the bad effects of kankushtham, a decoction of babbula root is to be repeatedly administered along with jīraka and bōrax, (ibid, 117).

Śodhana: Kankushtham can be purified by subjecting it to bhavana three times with a decoction of śunthi (ginger), (ibid, 114).

Sattva-patana: Kankushtham is supposed to be so full of essence that it is not necessary to extract anything from it, (ibid).

Kāsīsam

Varieties: There are two varieties—(1) vālukā-kāsīsa or dhātu-kāsīsa, the green variety, and (2) pushpa-kāsīsa, the yellowish variety. The yellowish-variety is to be preferred, (RRS, 3, 52-54).

Medicinal Action:

Rasa : Sour and alkaline (vālukā-kāsīsa)
Sour and astringent (pushpa-kāsīsa)
Guṇa : Heavy (vālukā-kāsīsa)
Vīrya : Hot (both varieties)

Vālukā-kāsīsa alleviates kapha and vāta, antidotes poison, and is beneficial in skin diseases, especially leucoderma.

Pushpa-kāsīsa alleviates kapha and vāta, antidotes poison, is extremely beneficial to eyesight, and is useful in ulcers, skin diseases, tuberculosis, leucoderma, pruritus, dysuria, and urinary calculi, (RRS, 3, 54; DN, 3, 124-126; RN, 13, 180-181).

Note:

1. It is recommended as a dusting powder in ulcers, skin diseases, etc., (CS, sūtra, 3, 10; chikitsā, 21, 126).
2. It is valuable in dispelling fleshy growths, (SS, sūtra, 37, 31).
3. It is used externally for promoting healing of wounds, (SS, sūtra, 37, 27-28).

4. The bhasma of kāsīsa prepared from sulphur and an equal quantity of kānta-loha prepared from kāsīsa are mixed with triphala, vidanga, ghee and honey (in a mortar). This, taken in doses of one śāna, is very useful in leucoderma, anaemia, tuberculosis, abdominal tumours, enlargements of spleen, haemorrhoids and colic. If taken for one year, in accordance with the rules prescribed for taking rasāyana, it relieves anorexia and signs of premature ageing, (RRS, 3, 55-58).

Śodhana: Kāsīsa is purified if it is powdered and subjected to bhāvanā' (or boiled) with the juice of bhṛngarāja, (ibid, 54).

Sattva-pātana: The essence of kāsīsa is extracted in the same way as that of tuvarī (alum), (ibid, 55).

Comments:

Identification:

English	- Iron sulphate ($FeSO_4 \cdot 7H_2O$).
Hindi	- Kasīs, Hīra-kasīs
Persian	- Jāj-sabj
Arabic	- Jaj-akhjar
Kanada	- Anna-bhedi
Bengali	- Hirākas

Occurrence: Kasisa is produced artificially from the so-called alum shales from which alum is prepared. As is the case with alum, it is sometimes found as a natural exudation upon alum shales and other rocks which include iron pyrites, (HHC, Vol.I).

It is found along with copper sulphate in drained water of pyrites. It also occurs naturally as melanterite or copperas.

Lavaṇam

Varieties: There are six varieties of salts, viz. (1) Saindhava (rock salt), (2) Romaka, (3)

Sāmudra (sea salt), (4) Viḍa (artificially prepared salt), (5) Souvarchala, and (6) Audbhida, (SS, sūtra, 46, 313).

According to DN, there are five salts, namely Saindhava, Romaka, Sāmudra, Viḍa and Souvarchala, (DN, 7, 55).

Medicinal Action:

Guṇa	: Unctous
Vīrya	: Hot

All these salts alleviate vāta, aggravate kapha and pitta, are diuretic and laxative.

Note: The salts are used for the process called ayaskṛti (SS, chikitsā, 10, 9), 'a crude and imperfect but all the same potentially modern process for the preparation of the metallic salts'. (HHC, Vol.I).

Loham

Synonyms: Ayah

Varieties: There are three main kinds of iron as mentioned in the texts:

1. Muṇḍa-loha (ordinary iron or wrought iron) which in turn is of three varieties: mṛḍu (which easily melts, does not break and is glossy); kuṇṭham (which expands with difficulty when struck with a hammer); and kadaram (which breaks when struck with a hammer and has a black fracture).
2. Tikshṇa-loha (steel) which is of six varieties: kharam (rough, free from hair-like lines, and on breaking shows the lustre of quick-silver and which breaks easily by bending); saram (which breaks in the sides by hammering, has hair-like lines and is a product of brown soil); hṛnnālam (black in colour, shows beak or seed-like lines and is difficult to cut); vājiram (which has thin lines, is sky-coloured and has the lustre of diamond); kāla-loham (which is blue-black in

colour, brilliant, heavy and does not break even when struck by an iron hammer); and tārapaṭṭa (which is black, smooth, glazy and has very fine carved lines on its surface).

3. Kānta-loha (magnetic iron) which is of five kinds: bhrāmakam (which makes all kinds of iron move about); chumbakam (which kisses any other piece of iron); karshakam (which attracts another piece of iron); drāvakam (which can at once repel other sorts of iron); and romakāntam (which, when broken, shoots forth hair-like filaments).

Of these three main kinds, kānta-loha is recommended for medicinal use, (RRS, 5, 67-90).

Medicinal Action:

Rasa	: Bitter (muṇḍa-loha and kānta-loha) Sweet and bitter (tikshṇa-loha)
Guṇa	: Dry and sharp (muṇḍa-loha) Dry (tikshṇa-loha) Unctous (kānta-loha)
Vīrya	: Hot (muṇḍa-loha) Cold (kānta-loha and tikshṇa-loha)
Vipāka	: Sweet (tikshṇa-loha)

Muṇḍa-loha alleviates kapha and vāta, increases the quantity of blood, and is beneficial in abdominal colic, haemorrhoids, indigestion, urinary disorders, jaundice, anaemia, abdominal tumours, rheumatism and oedema.

Tikshṇa-loha alleviates kapha and pitta, bestows long life, is strength-giving and is useful in skin diseases, enlargement of the spleen, indigestion, anaemia, abdominal colic, enlargement of the liver, tuberculosis, rheumatism and haemorrhoids.

Kānta-loha alleviates all the doshas, bestows long life and health, is nourishing and is useful in tuberculosis, urinary disorders, abdominal colic, indigestion, haemorrhoids, abdominal tumours, enlargement of the spleen and liver, anaemia, ascites, worms, headache, epilepsy,

swellings, pyrosis, jaundice, skin diseases and anal fistula, (RRS, 5; DN, 6, 30-31; RN, 13, 31; CS, sūtra, 1, 70; SS, sūtra, 46, 328).

Diet: A person being administered iron should avoid kūshmāṇḍa (Benincasa cerifera), til oil, māsha (Phaseolus mungo), rājika (Brassica juncea), alcohol, sour food and masūra, (AP, 3, 229).

Note:

1. It is valuable for effects of bad dreams, (SS, sūtra, 29, 71-72).
2. Iron is specific for anaemia, (AHR, uttara, 40, 48).
3. Tikshṇa-loha is used as a tonic and rejuvenative, (CS, chikitsā, 1, 3, 16).
4. Lohabhasma is to be taken with hingu and honey in colic; with powdered pippalī in chronic fevers; with ghee and garlic juice in rheumatism, paralysis, etc; with honey and trikaṭu in asthma; with triphala and sugar-candy in urinary disorders; with nirguṇḍi in fevers with chill; etc., (RJN, Vol.III, page.80).
5. Loha-bhasma can be used in most diseases with the decoction of triphala and honey.
6. Loha-bhasma and purified sulphur, if taken daily in equal quantities with honey, ghee and a decoction of triphala, confer strength, lustre and sharp eye-sight and turn grey hair black, (AP, 1, 389).

Toxic Effects: Iron, if not purified will cause palpitation, heart-diseases, debility, anaemia, skin diseases, abdominal colic, intense nausea, urinary calculi, and take away health, lustre and even life, (RRS, 5, 79; DN, 6, 32).

Antidotes:

1. Evil effects of impure iron are removed if one takes viḍaṅga, previously rubbed with the juice of vāsaka (Adhatoda vaśica) or agastya mixed with a sufficient quantity of the juice of vāsaka,

and exposed for a long time to the heat of the sun, (AP, 3, 230; RJN, Vol. III, page 89).

2. Powders of harītaki, saindhava, ginger, white jeera—each equal in quantity, and trivṛt double the quantity of each of the above-mentioned, should be subjected to bhāvanā with the juice of lemons. This counteracts the evil effects of improperly purified iron, (ibid, page 87-88).

Śodhana:

1. Iron is first to be heated and beaten into thin leaves or strips. It is then boiled with a decoction of the leaves or fruits of amlīka (tamarind) or a decoction of triphala prepared with cow's urine, (RRS, 5, 105).
2. It is also purified by immersing the thin sheets after heating them until they are red hot, in a decoction of triphala. This is done seven times, (RRS, 5, 102-103).

Māraṇa:

1. Tīkṣhṇa-loha is to be hammered into thin sheets, devoid of layers. They are then heated until they are red hot and dipped in water. They are later reduced to a powder in a stone mortar.

Those portions of iron which cannot be powdered are confined within two earthen basins, subjected to strong heat and then immersed in water. They are then powdered. The powder is rubbed with mercury and sulphur and subjected to puṭa twenty times. Before each puṭa, the powder is to be rubbed with lemon juice or kāñjī, (RRS, 5, 109-112).

2. It is rubbed for some length of time with sulphur and the juice of kumāri (Aloe vera) and then subjected to gaja puṭa. This has to be done eight or ten times, (RRS, 5, 123).

Amṛtīkaraṇa: Loha-bhasma is heated with equal or double the quantity of a decoction of triphala, (AP, 3, 280).

Comments:

Identification:

English	-	Iron
Hindi	-	Loha
Persian	-	Āhan
Marathi	-	Lokhand
Arabic	-	Hadīd
Kanada	-	Kabbiṇa
Tamil	-	Irimbu
Telugu	-	Inumu

Occurrence: Iron-ore occurs on a large scale in India, chiefly in the form of oxides: Haematite and Magnetite. Iron seems to have been worked on an extensive scale in the past, as is evident from the widely scattered slagheaps which are to be seen in many parts of India.

Mākshikam

Varieties: This is of two kinds — (1) Suvarṇa-mākshikam and (2) Roupya mākshikam.

Synonyms of Suvarṇa-mākshikam: Tāpijam, Dhātu-mākshikam, Madhu-dhātuh, Pīta-mākshikam.

Medicinal Action:

Rasa	: Bitter, pungent, sweet and sour
Vīrya	: Hot

It alleviates all the doshas, bestows long life, antidotes poison, improves eye-sight, is an aphrodisiac, strength-giving and is useful in urinary disorders, anaemia, haemorrhoids, swellings, ascites, tuberculosis, vertigo, nausea, diseases of the bladder, syncope, cough, dyspnoea, skin diseases and eye-diseases, (RRS, 2, 77; DN, 3, 148-150; RN, 13, 209-213; CS. chikitsā, 16, 73).

Diet: Kulattha (Horse-gram) and kapota are food articles which are to be avoided, (SS, chikitsā, 13, 18).

Note:

1. It is valuable as a rejuvenative and in urinary disorders, skin diseases, anaemia and tuberculosis, (SS, chikitsā, 13, 17).
2. It is very valuable in skin diseases, (CS, chikitsā 7, 70-71).
3. Charaka also recommends it as a rejuvenative, and for anaemia, cough, tuberculosis, intermittent fever, etc., (CS, chikitsā, 16, 82).
4. Mākshika-bhasma has to be taken with the anupāna of triphala, trikaṭu, viṇṇaṅga or ghee, (RJN, II, page 77).

Toxic Effects: Impure mākshika engenders anaemia, loss of appetite, fatigue, constipation, skin diseases, eye-diseases, glandular swellings, ulcers and even death, (DN, 3, 150; RJN, II, page 66).

Antidote: A decoction of kulattha or the bark of dāḍima removes the evil effects of impure mākshika, (RJN, II, page 77).

Śodhana:

1. Svarṇa-mākshika is to be powdered well and boiled (in a dolā-yantra) with castor oil mixed with the juice of mātulunga or boiled with the juice of kadalī-kanda (banana stem) for 48 minutes, (RRS, 2, 83).
2. Three parts of mākshika and one part of rock-salt are to be boiled in an iron pot with the juice of mātulunga or jambīra, and stirred continuously with an iron ladle till the mākshika turns red hot and attains the colour of copper, (AP, 4, 12-13).
3. It is also purified if it is heated and immersed in a decoction of triphala, (RRS, 2, 83).

Māraṇa:

1. Mākshika is made into a paste with an equal quantity of sulphur and the required amount of juice of mātulunga. This is dried, and then subjected to heat by lāvaka puṭa. In all, about five such puṭa are required, (ibid, 84).
2. Purified mākshika is rubbed well with castor oil, cow's ghee or juice of mātulunga, placed on a basin and heated steadily until it attains a vermilion-like (red) colour, (ibid, 85-86).

Sattva-pātana:

1. Mākshika is mixed with one-thirtieth its weight of nāga (lead) and with the kshāratraya (borax, refined natron and yava-kshāra) and the juice of sour fruits and rubbed in a mortar. It is then heated in an uncovered crucible. By this process, the essence is extracted. Even the smallest amount of lead present in the essence will be removed if the essence is heated strongly and immersed in the juice of nirguṇḍi, seven times, (RRS, 2, 87-88).
2. Mākshika is to be subjected repeatedly to bhāvanā with honey, castor-oil, cow's urine, cow's ghee and the juice of banana-stems. It is then to be placed in a crucible and heated until the copper-coloured essence is produced, (ibid, 89). The essence of mākshika is red like the colour of the guṇjā seed, and melts very easily, (ibid).

Sattva-drāvaṇa: Equal quantities of guṇjā, honey and borax are rubbed with castor oil. The mākshika sattva is subjected to āvāpa with this mixture. By this process, the essence is liquefied, (ibid, 94).

Comments:**Identification:**

English	- Chalco-pyrites
Hindi	- Sonā-mākhi
Marathi	- Mākshik
Arabic	- Mākara-śīša
Tamil	- Ponnimilai

Occurrence: Chalco-pyrite is the most widely occurring copper-bearing mineral. In small grains, it resembles gold. It contains trace amounts of many elements including silver and gold.

Sattva-pātana: (1) By mixing with lead and heating in an uncovered crucible, all the volatile impurities are removed along with the evaporation of lead. This is a sort of cupellation process. In the end pure copper is left behind.

Manahśilā

Synonyms: Manoguptā, Kunatī, Śilā, Golā, Nāga-jihvā, Nepālikā, Kalā, Manasah, Kalyāṇika, Rogaśilā

Varieties: There are three types of mahahśilā — (1) Śyāmāngī, which is blue, red or white, (2) Kaṇaviraka, which is lustrous and copper-coloured, and (3) Khaṇḍa, which occurs in crystals, is heavy and deep red in colour.

The second variety is considered better than the first, while the third variety is the best, (RRS, 3, 91-93).

Medicinal Action:

Rasa	: Pungent and bitter
Guṇa	: Unctous and heavy
Vīrya	: Hot

It alleviates kapha and vāta, antidotes poison, bestows long life, is emaciating, a laxative, enhances the complexion and is useful in indigestion, pruritus, cough, dyspnoea, tuberculosis, dysuria, urinary calculi, skin

diseases, herpes, hard chancre, fleshy growths, ulcers and eye-diseases, (SS, chikitsā, 19, 46-49; sūtra, 37, 14; CS, sūtra, 3, 3, 10; RRS, 3, 94; DN, 5, 93-99; RN, 13, 158-159).

Note:

1. It is extremely valuable as a rejuvenative, (RRS, 3, 94).
2. It is employed as one of the ingredients for a medicated ghee used in hiccougs and dyspnoea, (CS, chikitsa, 18, 245-246).

Toxic Effects: If taken without properly purifying it, it engenders urinary calculi, dysuria, indigestion, constipation, debility, anaemia and suppression or retention of urine, (RRS, 3, 95; DN, 3, 100).

Antidote: Manahśilā fails to produce any adverse effect in a person who is administered cow's milk with honey, for three days, (RJN, II, page 201).

Śodhana:

1. It is purified if subjected to bhāvanā seven times with the leaf-juice of agastya (Sesbania grandiflora) or with ginger juice, (RRS, 3, 93).
2. Manahśilā is purified if it is boiled in a dolā-yantra with the juice of bhṛngarāja, agastya, jayantī and ginger, (RJN, II, page 199).
3. It is also purified if subjected to bhāvanā for seven times with lime-water (chūrṇodaka), (ibid, page 200).

Sattva-pātana: Manahśilā is to be rubbed with one-eighth of its weight of maṇḍūra, jaggery, guggulu (gum-resin of Balsamodendron mukul) and ghee (separately). It is then (placed in a crucible and) heated strongly by a means of koshṭhi. By this process, the essence is extracted, (RRS, 3, 95).

Comments:**Identification:**

English	- Realgar, Arsenic disulphide (As_2S_2)
Hindi	- Mainasīl
Persian	- Charnikh-surkh
Marathi	- Manah-sīl
Bengali	- Manechāl
Malayalam	- Warangak

Occurrence: Realgar is found in the morain-material of Shunkalpa glacier in the Kumaon mountains.

Varieties: They are due to the presence of impurities and also the way the aggregates are formed. The third variety is purer than the other two.

Sattva-pātana: Manahsīlā (As_2S_2) is mixed with jaggery, resin, ghee and when distilled over high heat, arsenic is obtained.

Maṇḍūram

Synonyms: Kittam, Ayo-malam, Kṛṣṇa-chūrṇam

Medicinal Action:

Rasa	: Sweet and pungent
Virya	: Hot

It alleviates vāta, is rejuvenative and is useful in anaemia, urinary disorders, skin diseases, gout, worms, jaundice, colic, malignant jaundice, swellings, abdominal tumours, emaciation and enlargement of spleen, (DN, 6, 35-36; RN, 15, 36-37).

Note:

1. It is useful in anaemia, (CS, chikitsā, 17, 72; SS, uttara, 44, 23).
2. It has the same properties as iron (loha) and can be used as a substitute, (RRS, 5, 149).

3. Maṇḍūra which is a 100 years old is best, while that which is 80 years old is slightly less useful. That which is recent is unsuitable for medicinal use, (Rasārṇava).
4. Maṇḍūra as well as other metals have to be subjected to a process called Ayaskṛtī before being employed internally, (SS, chikitsā, 10, 9).

Śodhana:

1. The prepared iron rust is heated strongly with the charcoal prepared from the wood of vibhītaki (Terminalia belerica) and then immersed in a vessel made of the same wood, containing cow's urine. This process has to be repeated seven times. The product has then to be dried and powdered. This product is called maṇḍūra, (RRS, 5, 150).
2. The iron-rust has to be heated strongly and immersed in a decoction of triphala and cow's urine. This has to be done repeatedly until the rust is transformed into a fine powder. The product thus obtained is named maṇḍūra. This can be used for medicinal purposes, (ibid, 151).

Comments:**Identification:**

English	- Iron rust Impure oxide of iron
Hindi	- Maṇḍūr, Sighār
Persian	- Zang-e-āhana
Arabic	- Khabsūl-hadīd
Kanada	- Kabbīnada-kilubu
Bengali	- Lohar-gu
Tamil	- Irumbu-chittam

Iron rust exists in three varieties, FeO (that is recent), Fe_2O_3 , and Fe_3O_4 (that is very old rust).

Occurrence: It is prepared from iron rust consisting of small particles of iron scattered around the black-smith's anvil, when hot iron

is beaten on it; these by exposure to air become rusty and brittle. (IMM, Vol.II)

Śodhana: The rust is collected and heated over high heat using charcoal as a reducing agent. The oxide of iron will be converted into metal iron and the final mixture will be mostly iron with some unreacted iron oxide.

Māṇikyam

Synonyms: Śoṇaratnam, Ratna-rāt, Śṛṅgārī, Taralah, Padma-rāḡah, Ratna-nāyakah, Sougandhikam, Lohitakam, Kuruvindam, Śaren-dukam

Varieties: There are two varieties — (1) Padma-rāḡah, which is red like the red-lotus, lustrous, unctous, heavy and oval shaped, and (2) Nīla-gandhih, which is bluish internally and brownish-red externally, (RRS, 4, 9-11).

Medicinal Action:

Rasa : Sweet
Guṇa : Unctous

It alleviates kapha and vāta, is excellent as a rejuvenative (rasāyana), is appetizing, a sedative, an aphrodisiac, auspicious, a brain-tonic, strength-giving, a heart-tonic and is useful in tuberculosis. This has however to be used only after proper purification, (RRS, 4, 13; RN, 13, 23-28).

Śodhana:

1. Māṇikyā is purified by (powdering it and then) subjecting it to svedana (by boiling in a dolā-yantra) for three hours with the juice (or decoction) of the 'sour group' (lemon juice, or kāñji, etc), (RRS, 4, 60).
2. Equal quantities of manahśilā, sulphur and haritālā are made into a paste with the juice of lakucha and the purified powder of māṇikyā. The pulp is then subjected to heat by gaja-puta. About eight puta would have to be given to get the bhasma, (ibid, 63).

Māṇikyā-drti: The liquification of māṇikyā can be achieved by the same process as described under the 'Ratnas'.

Comments:

Identification:

English - Ruby
Hindi - Māṇik

Padmarāḡa and Nīlagandhi consist mainly of Al_2O_3 with trace amounts of iron, chromium and other metals, imparting bright red and bluish colours.

Occurrence: The rubies are found in situ in limestone, along with a number of other secondary minerals occurring in it. Some stones are also obtained from the hill-wash and alluvial detritus.

Mrddāra-śṛṅgam

Synonyms: Bodāra-śṛṅgakam

Occurrence: It mainly occurs in Gujarat and around the foothills of Mount Abu, (RRS, 3, 145).

Description: It occurs in many layers and is yellowish in colour. Its essence is nothing other than lead, (RRS, 3, 145).

Varieties: AP mentions two varieties of Mrddāra-śṛṅgam — (1) the yellow variety, which is laminated, and (2) the white variety, which is not.

Medicinal Action:

Rasa : Cold

It alleviates vāta and kapha, is an excellent aphrodisiac and prevents premature greying of the hair, (RRS; DN).

Comments:

Identification:

English - Litharge (PbO)
Hindi - Murdā-śing
Marathi - Murdaḡ-śing
Bengali - Murdo-sing
Gujarathi - Bodār-kākro

Marakatam

Synonyms: Gārut-matam, Rauhiṇeyam, Harin-maṇih, Souparṇam, Bhudha-ratnā, Tārksyah.

Description: It is green, heavy, unctous, beautiful, glittering and many coloured and acquires lustrous colour when heated, (RRS, 4, 21; RN, 13, 57).

Test of Excellence: That which resembles moss, or the colour of a peacock, or kācha or firefly or the body of a young parrot or the flowers of śirīsha (*Albizia lebeck*) is considered to be of good quality, (RN, 13, 56-57).

Medicinal Action:

Rasa : Sweet

Virya : Cold

It antidotes poison, is an aphrodisiac, nourishing, auspicious, appetizing, and is useful in pyrosis, fever, vomiting, dyspnoea, indigestion, haemorrhoids, anaemia and swellings, (RRS, 4, 23; DN, 6, 52; RN, 13, 53).

Note: It is valuable in antidoting the poisons of snakes, etc, (CS, chikitsā, 23, 252).

Comments:

Identification:

English - Emerald or aquamarine

Hindi - Pannā

Marathi - Pāchū

Nāgam

Synonyms: Sīsakam, Yavaneshtam, Chīna-pishtakam, Jaḍam, Tāra-śuddhikaram, Sirāvṛttam, Kṛṣṇāya-sam.

Description: It is readily fusible (melts), very heavy, presents a black and bright appearance on fracture, has a foetid odour and a black exterior, (RRS, 5, 170).

Medicinal Action:

Rasa : Bitter

Guṇa : Unctous

Virya : Extremely hot

It alleviates kapha and vāta, is appetizing, a laxative, an aphrodisiac and is useful in haemorrhoids, urinary disorders, ulcers, rheumatism, and abdominal tumours, (RRS, 5, 171; DN, 6, 21-22; RN, 13, 21-23; AP).

Note:

1. It antidotes poison, especially gara-visha, and is useful in worms, thirst, heart-disease, anaemia and urinary disorders (including diabetes), (SS, sūtra, 38, 62).
2. It has many properties and actions similar to vanga, but is most useful in urinary disorders (including diabetes), (AP).
3. Two palas of nāga-bhasma, an equal quantity of hingula and one karsha of manahśilā and gandhaka equal in weight to all the above drugs — are all to be rubbed with the juice of lemons and subjected to heat by gaja-puta. The product, which is called nāgāmṛtam is extremely powerful, (RJN, Vol.III, page 137).
4. Sugar-candy is considered to be one of the best anupāna for naga, (ibid, page 138).

Toxic Effect: If improperly purified, it engenders skin diseases, abdominal tumours, anorexia, anaemia, tuberculosis, diseases of kapha and blood, dysuria, fever, urinary calculi, anal fistula and colic, (AP, 3, 188-189; RJN, Vol.III, page 139).

Antidote: Haritaki taken along with suvarṇa and sugar-candy for three days serves as an effective antidote, (ibid, page 140).

Śodhana:

1. Lead has to be melted and immersed three times each in til oil, takra (butter-milk), kānjika (sour gruel), cow's urine,

a decoction of kulattha and a milky exudation of arka (*Calotropis gigantea*), (SaS, madhyama, 11, 2-4).

2. Lead is to be made into thin leaves, smeared with a paste of nirguṇḍi leaves and milk of arka, melted and then poured into the juice of nirguṇḍi. This has to be done seven times, (RJN, Vol.III, page 123).

Māraṇa:

1. The (thin) sheets of lead are to be smeared with a paste of manahsila (realgar) and juice of arka. They are then to be subjected to heat by puta (about eight or ten puta may be required), (RRS, 5, 184).
2. The sheets of lead have to be smeared with a paste of man-ahsila and the juice of betel-leaves. They are then subjected to heat by puṭa 32 times, (SaS, madhyama, 11, 36).

Comments:

Identification:

English	-	Plumbum, Lead
Hindi	-	Sīsā
Persian	-	Uṣrūb
Marathi	-	Śishay
Arabic	-	Ānuk
Gujarathi	-	Kālun-sīsun
Kanada	-	Sīsā

Occurrence: Lead does not occur free in nature; it occurs as a cubic sulphide known as galena. Lead was formerly produced in India on a large scale. Ores of lead, chiefly galena, occur at a number of places in the Himalayas, Tamil Nadu, Rajasthan and Bihar.

Māraṇa: When lead sheets are mixed with manahsila (As_2S_2) and subjected to the puṭa process, lead (Pb) forms lead sulphide (PbS), which is not stable, and sulphur is decomposed leaving behind PbO (lead oxide). Further As_2O_3 which is formed at a low temperature is

volatilised. The ashes of leaves when heated form pure carbon which also helps in the reduction of PbO .

Nava-sārah

Synonyms: Chūlikā-lavaṇah, Nava-sādarah

Occurrence: It is the product obtained by burning logs of karīra (*Capparis decidua*) wood and pilu (*Salvodara persica*). It is also obtained from brick-kilns. It is a brownish-white substance, (RRS, 3, 127-129).

Medicinal Action:

Rasa	: Saline
Guṇa	: Sharp
Vīrya	: Cold

It alleviates all the three doshas, is a laxative, appetizing, alkaline, and is useful in abdominal tumours, ascites, constipation, enlargement of the spleen, dryness of the mouth, leucoderma, swellings, diseases of the liver, fever, headache, diseases of the breasts, cough, bleeding from internal organs, menstrual disorders, and in facilitating healing of wounds. It helps to digest meat, (RRS, 3, 127-129; RJN, Vol.II, page 216).

Śodhana:

1. It is purified by subjecting it to bhāvanā for three days with the juices of mātulunga and ginger, (RRS, 3, 147).
2. It can also be purified by boiling it with limewater in a dolā-yantra.

Comments:

Identification:

English	-	Ammonium chloride, Sal ammoniac
Hindi	-	Navasāgar
Persian	-	Nausādar
Arabic	-	Armīna, Milhunnar

Nīlah

Synonyms: Śouriratnam, Nilāśmā, Tṛṇagrāhī.

Description: It has a uniform blue colour, is heavy, unctous, rounded, smooth and lustrous.

Varieties: There are two varieties — (1) Jala-nīla, which is blue with white specks internally, uniformly blue externally and light, and (2) Indra-nīla, which is blackish within, blue externally and heavy, (RRS, 4, 50).

Medicinal Action:

Rasa : Bitter

Virya : Hot

It alleviates all the doshas, antidotes poison, is appetizing, an aphrodisiac, strength-giving, improves the complexion, is a heart tonic, a brain- tonic and is useful in dyspnoea, cough, intermittent fever, haemorrhoids and skin diseases, (RRS, 4; RN, 13, 34-38).

Test of Excellence: It imparts its colour to milk when suspended in it, (RN, 13, 39).

Comments:

Identification:

English - Sapphire

Hindi - Nīlam

Marathi - Nīl

Arabic - Yākūt-kabūd

Occurrence: The main source of sapphires in India has been Kashmir.

Nīlānjanam

Synonyms: Chakshushyā, Drk-prasāda, Kulatthikā, Kulālī, Malāpahā, Kumbhakārī

Medicinal Action:

Rasa : Astringent and pungent

Guṇa : Unctous and heavy. (RRS, 3, 106)

Virya : Cold

It alleviates all the three doshas, antidotes both organic and inorganic poisons, improves eyesight, bestows long life and is beneficial in boils, pruritus, many eye-diseases and ulcers.

Purification: Nīlānjana is purified by powdering it, giving it bhāvanā in the juice of jambīra and later exposing it to sunlight for a day, (RSS).

Note:

1. It is used in the killing of gold and to induce softness in iron, (RRS, 3, 104).
2. When mixed with tikshṇa-loha (steel) and heated several times, it yields a superior kind of lead (vara-nāgam) which is readily fusible and is of mild black colour, (RRS, 8, 38).

Comments:

Identification:

English - Galena (Lead sulphide)

Hindi - Nīlānjan

Marathi - Kāla-susmā

Pāradah

Synonyms: Miśrakah (which absorbs and enhances the qualities of other substances when combined with them), Rudra-retah, Rasa-loham, Rasendrah, Chapalam, Mṛthyu-nāśanah, Rasāyana-śreshṭhah, Mahārasam.

Description: It is deep blue internally, is shining and has the lustre of the mid-day sun, (RSS, 1, 9).

Varieties: There are five varieties of mercury:

1. Rasah, which is red and when purified cures most diseases.
2. Rasendrah, which is black, coarse and very unstable.
3. Sūtah, which is slightly yellow, rough, full of evil properties, but after

- purification renders the body as strong as steel.
4. Pāradah, which is white and changeable.
 5. Miśrakah, which has the colour of peacock feathers and is very efficacious after purification.

Medicinal Action:

Rasa : All the six rasas
 Guṇa : Heavy and unctous
 Vīrya : Hot

It alleviates all the three doshas, is an excellent rejuvenative, is an aphrodisiac, strength-giving, improves eye-sight and complexion, is yogavāhi (i.e. enhances the qualities and action of other drugs without losing its own), and cures most diseases, especially those of the skin.

Note:

1. It is useful in skin diseases, (CS, chikitsā, 7, 71).
2. It removes moles, birth marks, etc., (SS, chikitsā 25, 39).
3. Pārada-bhasma alleviates pitta diseases if taken with sugar-candy and āmalaki (*Emblica officinalis*), vāta diseases when taken with pippalī (*Piper longum*), kapha diseases when taken with juice of ārdraka (*Zinziber officinalis*), blood diseases when taken with honey; dysentery and diarrhoea when taken with taṇḍulīyaka (*Amaranthus spinosus* Linn), fever with mustā (*Cyperus rotundus*) and parpaṭa (*Fumaria parviflora*), bleeding from internal organs, with vāsā (*Adhatoda vasica*) and pippalī, cough when taken with kaṇṭhakārī (*Solanum xanthocarpum*) and pippalī, jaundice with a decoction of yashtī (*Glycyrrhiza glabra*) and anaemia and jaundice when taken with dropsy with decoction of triphala, (RJN, Vol.I, page 4).

4. The fruits of bṛhatī (*Solanum indicum*) and bilva (*Aegle marmelos*) are to be administered to a patient who is discontinuing pārada-bhasma, (RJN, Vol.I, page.4).
5. A person who is to be administered pārada for the purpose of rejuvenation (rasāyana) should earlier undergo these procedures: Every morning for three days he should partake of ghee with rock-salt for the purpose of snehana (oleation). He should later undergo fomentation and detoxification (by the use of viḍanga, seeds of palāśa, etc). He should then be administered drugs such as abhraka, etc. for six months or one year, for building up his strength. These procedures form the kshetri- karaṇa (preparation of the soil), after which the rejuvenative therapy can be commenced, (AP, 1, 489-490).

Toxic Effects:

- I. There are twelve main impurities in pārada:
 - a) The three natural impurities namely poison, fire and dirt or dregs which respectively cause death, fever and syncope, (RRS, 11, 20).
 - b) The two artificial impurities, lead and tin, which give rise to lethargy, flatulent distension of the abdomen and skin-diseases, (RRS, 11, 21).
 - c) The seven 'conditional' coverings (kanchukah) depending on whether mercury is found in contact with soil, rock or water. These seven coverings will engender emaciation or roughness of the skin (parpaṭi), cracks or ulcerations and abscesses (pāṭanī), copious secretions or liquification of body elements (drāvī), purgation (malakārī), syncope or blindness (andhakārī) and hoarseness or darkness of the skin (dvāṅkshī), (RRS, 11, 22- 24). These impurities are either removed or transformed by means of eighteen

processes (samskāras), (RRS). RSS however prescribes only eight essential processes.

- II. Some of the other adverse effects produced by improperly purified pāradah are pain in the navel region, lethargy, drowsiness, fever, body pain and anorexia, (RJN, Vol.I).
- III. Some other toxic effects include bleeding and suppuration of the gums, looseness of the teeth, swelling of the gums, gum-boils, salivation, thickening of the tongue, swelling and ulceration of the palate, swelling of the parotid and other salivary glands, bad taste in the mouth, metallic taste, fever, weakness, lassitude, and many other serious ailments.

Inhalation of the fumes of mercury causes generalised trembling commencing in the extremities, muscular weakness and debility of the sense organs, (BR, pāradavikārādhikāra).

Antidotes:

1. Gandhaka (sulphur) when purified is a very effective antidote, (ibid.; and RJN, Vol.I)
2. For the bad effects of using lead and mercury, the juice of kāravellaka (Momordica charantia) with saindhava lavaṇa (rock-salt) is a good antidote, (RJN, Vol.I).

Diet: The following food articles are recommended for a patient being administered pārada:

Ghee, saindhava salt (rock-salt), dhānya (coriander seeds), jīraka (cumin seeds), ādraka (fresh ginger), milk, pippalī (Piper longum), taṇḍulīyaka (Amaranthus spinosus Linn), paṭola (Trichosanthes dioica), godhūma (wheat), old rice, cow's milk, butter, hamsodaka, mudga (green-gram dhal), punarnavā (Boerha-avia diffusa), mustā (Cyperus rotundus), vāstuka (Chenopodium album Linn) and mūlaka (radish).

The following are to be avoided:

Bṛhatī (Solanum indicum), bilva (Aegle marmelos), kūshmāṇḍa (Benincasa cerifera, cucumber), kāravellaka, māshā (black-gram), masūra (lentil, Lens culinaris), nishpāva (Dolichos lablab), kulattha (horse gram), sarshapa (mustard seeds), tīla (til seeds and oil), fasting, massage, alcoholic drinks, flesh of aquatic animals, dhānyāmla, eating off plantain leaves or kāmśya (bell-metal) and other food articles which are hard to digest, constipative and heat-producing, (RRS, 11, 117).

Purificatory Processes: The purificatory processes should be commenced on an auspicious day with mercury weighing 100, 28, 10, 5, 1 or 0.5 pala in weight, (RRS, 11, 25).

Śodhana:

I. Svedana

1. Mercury is to be mixed with trikaṭu, saindhava lavaṇa, rājika, and the roots of chitraka and ginger, and bound in a cloth and subjected to svedana (or boiling) for three days in a dolā-yantra containing kānji, (RRS, 11, 26).

According to BP, if the quantity is not specified, each of the substances which are to be mixed with mercury is taken in an amount equal to one-sixteenth of that of mercury.

2. A crucible is to be formed of rājika and rasona (garlic) over which mercury is to be placed. It is then covered with the leaf of kadalī (banana-leaf), enclosed within a four-folded cloth, and subjected to boiling in a dolā-yantra containing kānji, for three days (72 hours), (SaS, madhyama, 12, 4).

II. Mardana

1. Mercury is then to be rubbed continuously for three days with the fine powders of ash, brick powder, curds,

jaggery, rock-salt and rājika. Then it is again rubbed separately with abhraka-bhasma, svarṇa or rajata-bhasma and jirṇa (exhausted) mercury, (RRS, 11, 27-30).

2. Mercury is to be rubbed vigorously and continuously for one day with half its quantity of rock-salt, with the aid of lemon juice, (SaS, Madhyama, 12, 8).

III. Mūrcchana

1. Mercury is next rubbed in a mortar with the juice of kumārī, the powder of triphala and powder of root of chitraka, all combined together, until the mercury loses its original svarūpa (i.e. its volatility). This process is to be done seven times, (RRS, 11, 31-32).
2. Mercury can also be rubbed with rājika, rasona, navasā-gara and tushāmbu until it loses its original character, (SaS, madhyama, 11, 9).

IV. Utthāpana

1. After the process of mūrcchana, mercury is sublimated by means of a ḍamaru yantra. After the apparatus has cooled the mercury is taken out and washed with kānji. By this process, the impurities of lead and tin are eliminated, (RRS, 11, 33).
2. Mercury can, after the process of mūrcchana, be washed with hot water and hot kānji. By this process also, the (above named) impurities are eliminated, (AP).
3. Mercury is to be rubbed with one-fourth of its weight of powdered turmeric, and a sufficient quantity of the juice of kanyā (aloes) and then sublimated in a pātana-yantra. This is what is called the utthāpana or raising of mercury, (RJN, Vol.I, page 57).

V. Pātana

This process includes ūrdva-pātana (upward sublimation), adhah-pātana (downward sublimation) and tiryak-pātana (inclined sublimation)

1. **Ūrdhva-pātana:** Mercury is made into a lump with (one-fourth its weight of) the powder of copper, placed in the lower vessel of the ūrdhva-pātana-yantra and subjected to (upward) sublimation, thrice. It is then subjected to adhah-pātana, seven times. By this process, the remnants of lead and tin are completely eliminated, (RRS, 11, 35).

2. **Adhah-pātana:** Mercury is rubbed with triphala, (bark of) sigru (drum-stick tree), (root of) chitraka, rock-salt and rājika, so vigorously that it loses its separate identity. The paste is then smeared over the internal surface of the upper vessel in the adhah-pātana-yantra. The yantra is then subjected to heat. By this method, downward-sublimation of mercury is effected, (RRS, 11, 36).

3. **Tiryak-pātana:** Mercury is rubbed with powdered and purified mica (one-fourth its quantity) and kānji in a mortar until it loses its separate identity. The lump is then placed within a tiryak-pātana-yantra, which is subjected to mild, moderate and strong heat. The mercury that is obtained is to be boiled in a dolā-yantra, dried and rubbed with mica, as done previously. The process is continued until no more mercury is obtained by inclined sublimation.

The mercury that is now obtained is very useful when used for medicinal purposes, (RRS, 11, 41-43).

VI. Rodhana

Mercury is then subjected to boiling in a solution of rock-salt. By this process, mercury gains additional power to heal, (RRS, 11, 45).

VII. Niyāmana

This process helps to do away with the chapalatva (restlessness) of mercury.

Three crucibles are to be made out of a thick lump of rock-salt (each for use for one day).

Mercury with one-sixteenth its weight of navasāgara is placed inside the crucible, the mouth of which is closed with mud and rags. It is then heated in a bhūdhara-yantra, for three days (one day in each crucible), (RJN, Vol.I, page 68).

VIII. Dīpana

Mercury is to be mixed with the juice of chitraka, and boiled in a dolā-yantra with kāñji for three days, (RJN, Vol.I, page 70). These eight processes are sufficient to remove the impurities of mercury and render it fit for use in medicine, (RRS, 11, 58).

Note: After each of these processes, mercury is to be rubbed for one day with the juice of aloes, washed with hot kāñji and warm water and dried.

Although mercury can be used for medicinal purposes after these eight processes, it is better to subject it to māraṇa also.

Māraṇa:

1. Hingu (Ferula narthex) is subjected to bhāvanā with the milky exudation of kakodumbara. Mercury is then rubbed with this hingu and subjected to heat by puṭa. Purified mercury is incinerated by this method, (RRS, 11, 114).
2. Purified mercury is rubbed into a lump with the fine powder of the seeds of apā-mārga and red castor plant (Eraṇḍa). The lump is then enclosed within a crucible with the powder sprinkled below and above it. The crucible is then subjected to heat by laghu puṭa, four times, (ibid, 117).

Various Processes for Solidifying Mercury:

The main faults of mercury are said to be its liquidity (chāñchalya) and its poisonous nature. There are twenty-five processes which can bind or solidify mercury. These are called bandha or rasa-bandha, (RRS, 11, 60).

1. **Hattha-bandha:** Solidification of mercury which has not been properly purified (by the eight important processes already described) is referred to as hattha-bandha. Partaking of this mercury may cause serious diseases or even death.
2. **Āroṭa-bandha:** Solidifying mercury which has been properly purified. Such mercury is extremely efficacious as a rejuvenative and when used over a course of time cures many diseases. This can be achieved by incinerating purified mercury only once, (Toḍarānanda).
3. **Ābhāsa-bandha:** Solidification of mercury after subjecting it to bhāvanā with various drugs and metals and then heating it by puṭa is known as ābhāsa-bandha. RJN however gives a different interpretation: "The mercury, (which) though mixed with metals or drugs, does not allow itself to be solidified, but sublimates and assumes its original condition, when subjected to heating by means of puṭa, is called, 'ābhāsa', (RJN, Vol.I, page 313).
4. **Kriyā-hīna-bandha:** Solidification of purified mercury by the use of improperly purified metals, etc. Taking this mercury without the proper diet gives rise to many diseases.
5. **Pishtikā-bandha:** Solidification of mercury by rubbing it steadily, and exposing it to the severe sun's rays until mercury attains the consistence of fresh butter. This mercury is appetizing and a digestive.
6. **Kshāra-bandha:** The solidification of mercury by combining it with the bhasmas of conch-shells, oysters, cowries, etc. is called kshāra-bandha. This mercury is appetizing, nutritive and relieves abdominal colic.
7. **Khoṭa-bandha:** Solidification of mercury in such a manner that it undergoes condensation and reduction in quantity each time it is heated. This mercury is very efficacious in many diseases.

8. **Poṭa-bandha or rasa-parpaṭī:** This is a process in which purified mercury and purified sulphur are first transformed into a kajjalī. This kajjalī is then liquefied (by heating it) and made into thin flakes by pressing it between two plantain leaves (which cover two cowdung cakes). This form of mercury is extremely useful in diseases of children.
9. **Kalka-bandha:** Solidification of mercury by subjecting it to svedana (boiling), rubbing, etc. until it attains the appearance of mud (or clay) is called kalka-bandha. This is also quite efficacious in certain diseases.
10. **Kajjalī-bandha:** (See Kajjalī)
11. **Sajīva-bandha:** A certain amount of mercury sublimates during the processes of incineration, and comes out of the crucible. This mercury is not to be used in medicine.
12. **Nirjīva-bandha:** Mercury is incinerated after it has been made to swallow (jāraṇa) mica and sulphur. This process is called nirjīva-bandha. The mercury thus obtained is extremely useful as a medicine.
13. **Nirbīja-bandha:** Purified mercury is made to swallow one-fourth its quantity of gold, and is then converted into a paste or lump with an equal amount of sulphur. This lump is then covered both above and below by an equal quantity of sulphur and subjected to heat by puta. This process is called nirbīja-bandha. The mercury thus prepared is also very useful.
14. **Sabīja-bandha:** Mercury is made to swallow abhraka-sattva (the essence of mica), gold, silver, copper and kānta-loha. It is then incinerated with six times its weight of sulphur, by means of puta. This mercury is of supreme strength.
15. **Śṛṅkhalā-bandha:** Mercury which is incinerated with diamond, etc. is mixed with an equal amount of mercury which is incinerated with sulphur and herbs. This process is called śṛṅkhalā-bandha. Mercury so obtained renders the body as strong as steel.
16. **Druti-bandha:** Mercury which is solidified or incinerated after having been combined with metals which undergo liquification, can cure even severe diseases if taken in doses of a quarter of a rājika. This process of preparing mercury is known as druti-bandha.
17. **Bālaka-bandha:** Solidification of mercury which has been made to swallow an equal amount of mica is called bālaka-bandha. The mercury that is so obtained is rejuvenative and enhances resistance to diseases.
18. **Kumāra-bandha:** Solidification and incineration of mercury which has swallowed double its quantity of mica is called kumāra-bandha. If the mercury thus obtained is taken for three weeks in doses the size of one rice-grain, it is a rejuvenative and is especially useful in skin diseases (including leprosy).
19. **Taruṇa-bandha:** The incineration of mercury which has been made to swallow four times its weight of mica is known as taruṇa-bandha. This mercury is the best among rejuvenatives. If taken for three weeks, it cures almost all diseases, and enhances strength and lustre.
20. **Vṛddha-bandha:** The incineration of mercury which has swallowed six times its weight of mica is called vṛddha-bandha. It is so precious and valuable that only Lord Śiva can do full justice to it.
21. **Mūrti-bandha:** Solidification of mercury, which with the aid of valuable herbs and without the aid of mica can withstand heat, is known as mūrti-bandha. This mercury does not undergo any reduction

when placed upon fire. This mercury is of incomparable efficacy.

22. **Jala-bandha:** The solidification of mercury by the use of śilā-toya, etc. is called jala-bandha. This mercury is also very useful. Śilā-toya is obtained when equal quantities of powders of sulphur and orpiment are sprinkled into a pot full of water, (Rasārṇava).
23. **Agni-bandha:** The process by which mercury, either alone or after processing with other drugs, transforms itself into a lump when placed upon fire, and does not undergo reduction is called agni-bandha. Such mercury is so efficacious that it can enable a person to fly in the air,
24. **Susamskr̥ta-bandha:** Mercury is to be rubbed into a paste or lump with various drugs and subjected to heat in a vālūkā-yantra. The mercury that is obtained is again rubbed with the bhasma of various metals and heated. This process is called susamskr̥ta-bandha.
25. **Mahā-bandha:** The process by which mercury when heated with gold or silver becomes solidified, heavy, amalgamated, bright, rounded, does not reduce in size when heated, can be easily powdered like salt, does not part with any rust when rubbed, and when heated, melts easily without producing any smell, is called mahā-bandha.

Comments:

Identification:

English	- Hydrargyrum, Mercury, Quick-silver
Hindi	- Pāra
Marathi	- Pārā
Persian	- Simāb, Zībaq
Arabic	- Zīvak, Enul-hayāt
Kanada	- Pādarasa

Occurrence: It is sometimes met with free in small quantities in nature, in the form of small,

shining silvery globules. "But it is mostly extracted, by upward sublimation (ūrdhva-pātana) from cinnabar (hingula) by an apparatus known as vidyādhara-yantra", (RRS, 1, 88).

Mercury is the only metal that is liquid under ordinary temperatures. Mercury alloys readily with gold, silver, copper, lead, tin and zinc.

Various combination of mercury with sulphur and other herbal decoctions were tried by Indian alchemists, and they called mercury as "swooned" when it lost its agility, "killed" when having it lost its fluidity and "fixed" when it was not easily volatilised by mild heat. One of the recipes for "elixir of life" was to mix mercury with an equal quantity of gold along with some amount of sulphur and was sublimed at a low heat. The sublimate when partaken as per the alchemist's instructions would make the body immortal.

It is a moot point whether this sublimate had this effect or not, but it started an era of preparation of chemical compounds in particular with mercury. Upto the 14th century a large number of medical treatises, written by Ayurvedic physicians, describe exhaustively the purification of mercury and formulation of its chemical compounds.

Rasa Ratnākara specifies 18 methods of cleansing and purification of mercury. Basically it amounts to immersing the impure mercury in boiling solutions of various herbal decoctions. The herbal decoctions which are acidic in nature act as a pickling media, aiding in the removal of surface impurities.

All the other processes of purification of mercury involve either condensation or distillation.

Pittalam

Synonyms: Rītikā, Pingala-loham, Kshu-dra-suvamāḥ, Lohitakam. Arak-uttam, Simhalakam, Nishthurah.

Occurrence: Brass is considered a miśra-loha (alloy) (RRS, 5, 1) and BP refers to it as being an upa-dhātu of copper and zinc.

Description: Brass of good quality is heavy, soft, yellowish in colour, heavy, capable of resisting hard strokes, unctous and smooth.

That, on the other hand, which is whitish-yellow in colour, rough, dry, coarse, brittle, light and which has a foul odour is unsuitable for medicinal purposes, (RRS, 5, 193-194).

Varieties: There are two varieties of brass — (1) Pītikā, which on being heated and immersed in sour gruel (kanji) turns copper coloured, and (2) Kaka-tundi, which when subjected to the same process, turns blackish.

Medicinal Action:

Rasa : Bitter and salty
Guṇa : Dry
Unctous (when purified)
Vīrya : Cold

It alleviates vāta and pitta, antidotes poison, bestows longevity, is an excellent rejuvenative, is a laxative, an aphrodisiac, slightly emaciating, and is useful in anaemia, worms, greying of hair, baldness and enlargement of the spleen.

The kākatuṇḍī variety is especially useful in enlargement of the liver and spleen, while the other variety is useful in skin diseases, worms and haemorrhages, (RRS, 5, 193-194).

Śodhana:

1. Brass of good quality is to be heated five times and immersed each time into the juice of nirguṇḍī, mixed with a little turmeric powder, (RRS, 5, 197).
2. Brass can be purified by the same process employed for purifying copper, (RRS, 1).

Māraṇa:

1. A paste of sulphur, manahśila and lemon juice is smeared over the leaves of purified brass. The leaves are then subjected to heat by puṭa, eight times. The pittala-bhasma prepared by this method can be used safely, (RRS, 5, 198).
2. Purified brass can be incinerated by the same process used for preparing tāmra-bhasma, (ibid, 199).

A method of liquification of brass has been described in RRS, (5, 202-204).

Comments:

Identification:

English - Brass
Hindi - Pīṭal
Marathi - Pīṭol, Sona-pital
Persian - Bīranj
Kanada - Hittāle
Telugu - Hittadi

Pravāḷa

Synonyms: Vidrumah, Sāmudrah.

Description: Pravāḷa of good quality has the red colour of ripe bimbi fruit, is rounded, elongated, not distorted or crooked in shape, is unctous or oily, devoid of knots, and is large in size.

That pravāḷa which is brownish, ash coloured, whitish, dry, cracked, with pores, and light is to be rejected (RRS).

Medicinal Action:

Rasa : Sweet, slightly sour
Guṇa : Light and dry
Vīrya : Cold
Vipāka : Sweet

Pushpāñjanam

It alleviates all the three doshās, is appetizing, digestive, strength-giving, antidotes poison and is useful in bleeding from internal organs, tuberculosis, cough, eye diseases, excessive sweating and night sweats. It enhances the complexion, (RRS, 4, 20, RT).

It alleviates kapha and cures dysuria (CS, chikitsā, 26, 56). It is useful in anaemia when taken with cow's urine (SS, uttara, 44, 21).

Comments:

Identification:

English	- Coral, <i>Corallium rubrum</i>
Hindi	- Moong
Marathi	- Povale
Bengali	- Palā
Gujarathi	- Paravaḷa
Kah.	- Havaḷa

Corals are the stone like or horn like outer framework of certain anthozoa and some hydrozoa.

Coral contains calcium carbonate, magnesium carbonate, calcium sulphate, iron oxide and phosphoric acid.

Pushpāñjanam

Synonyms: Pushpaketuh, Kusumāñ-janam, Rītijam, Rītipushpam

Medicinal Action:

Guṇa	: Unctous
Vīrya	: Cold

It alleviates pitta, antidotes poison, and is useful in conjunctivitis, burning pains, eczema and other skin diseases, ulcers, severe hiccoughs, all eye diseases and fever.

Note: It is used as collyrium in eye-diseases, (CS, chikitsā, 26).

Comments:

Identification:

Eng.	- Zinc oxide
Mah.	- Jasdā-che-phūl
Hin.	- Jasde-ka-phūl
Pers.	- Safad-e-kāśgarī

Occurrence: It is sometimes met with freely in nature. It is also manufactured in Rajasthan.

Pushpa-rāgh

Synonyms: Pita-sphaṭikah, Pīta-raktah, Gururatanam.

Description: That which is heavy, unctous, smooth, clear, soft, rounded and has the colour of flowers of karnikāra (*Cassia fistula*) is considered superior, (RRS, 4, 24).

Medicinal Action:

Rasa	: Sour
Guṇa	: Light
Vīrya	: Cold

It alleviates kapha and vāta, antidotes poison, purifies the blood, bestows long life, is appetizing, digestive, aphrodisiac, brain tonic, nutritive, and is useful in dyspepsia, skin diseases, vomiting, burning pains and haemorrhoids.

Comments:

Identification:

Eng.	- Topaz
Pers.	- Yākūt-zard
Hin.	- Pukh-rāj

Occurrence: It is found in North Asia, Sri Lanka and Burma.

Rajatam

Synonyms: Roup Yam, Soudham, Tāram, Śubhram, Kupyam, Ruchiram, Vasu-śreshṭham, Śvetakam, Chandra-hāram, Mahāvasu, Vākyalam.

Description: That silver which is heavy, clear, unctous (as if smeared with oil), smooth, resembles conch shell in appearance (śankhābham), is free from cracks and which is white on being heated or when cut into pieces is considered to be of the best kind.

That silver, on the other hand, which turns reddish, yellowish or black on being heated, which is dry, light, full of cracks, coarse, and rough is to be rejected, (RRS, 5, 26-27).

Varieties: There are three kinds of silver — (1) Sahaja, which occurs in the natural state. This is considered very efficacious. (2) Khanija, which is got from mines. This is an excellent rejuvenative. (3) Kṛtrima, which is extracted or prepared from other sources. This is also very useful, (RRS, 5, 22-25).

Medicinal Action:

Rasa	: Sour, sweet, astringent and bitter
Guṇa	: Unctous
Vīrya	: Cold
Vipāka	: Sweet

It alleviates vāta and pitta, antidotes poison, confers longevity, retards greying and falling of hair, is a brain tonic, a laxative, emaciating, an aphrodisiac, strength-giving, appetizing, enhances the complexion and is useful in chronic diseases like urinary disorders (including diabetes), (RRS, 5, 28-29).

Note:

1. Equal quantities of rajata-bhasma, abhraka-bhasma and tāmra-bhasma taken with powdered trikaṭu and triph-

ala, honey and ghee, in the morning are valuable in tuberculosis, anaemia, ascites, haemorrhoids, cough, dyspnoea, diseases of vitiated pitta and eye-diseases, (RRS, 5, 40).

2. Roup ya-bhasma, if administered with sugar-candy, relieves a burning sensation; with triphala, diseases of vāta and pitta; with tri-sugandhi, urinary disorders (including diabetes); with kshāra, abdominal tumours; with juice of vāsaka and trikaṭu, cough caused by kapha; with bhārngī and ginger, dyspnoea (asthma); with śilājatu, tuberculosis; with meat juice or milk, emaciation; with triphala and pippalī, enlargement of the spleen and liver; with punarnavā, dropsy; with maṇḍūra bhasma, anaemia; and with ghee, it retards ageing and enhances appetite and complexion, (RJN, Vol.II, page 271-272).

Śodhana:

1. Thin leaves of silver are to be heated over a fire and immersed in til oil, buttermilk, kānjī, cow's urine and a decoction of kulatṭha. This has to be done three times (seven times according to RRS, 5, 13), (SaS, madhyama, 11, 2, 3).
2. A bowl of ashes and lime is constructed inside an earthen vessel. Inside this bowl, is to be kept equal quantities of silver and lead. The vessel is then to be heated until all the lead is burnt off. By this method, silver is thoroughly purified, (RRS, 5, 32-33).
3. Leaves of silver are heated strongly and immersed in the juice of agastya (*Sesbania grandiflora*). This has to be done three times, (RJN, Vol. II, page 264).

Māraṇa:

1. The leaves of purified silver have to be smeared with a paste of pārada-bhasma and the juice of lakucha. After being dried,

the leaves are to be placed in a crucible, with powdered sulphur being sprinkled both below and above them. The crucible is to be heated in a bālūka-yantra for one day by means of a steady fire. After the crucible has cooled, the contents are to be taken out and rubbed with haratāla and lemon juice (or any sour juice). The lump is then subjected to heat by puṭa twelve times, (RRS, 5, 34-35).

2. The leaves of purified silver are to be smeared with the paste of purified (suvarṇa) mākshika and juice of mātulunga. They are then to be subjected to heat by puṭa, thirty times, (ibid, 36).

Rajata-druti: Both silver and gold are liquefied if the process of āvāpa is carried out with the paste of devadāli previously subjected to bhāvaṇā with human urine, (RRS, 5, 41).

Comments:

Identification:

English	- Silver, Argentum metallicum
Hindi	- Chāndi
Persian	- Seem
Arabic	- Nukrā
Bengali	- Rupa
Kanada	- Beḷli
Tamil	- Velli
Telugu	- Venḍi

Occurrence: Silver occurs in nature in its free state or as alluvial concentrations, being occasionally 90 per cent pure, but generally containing copper, etc.

Śodhana: The second process resembles the modern cupellation process wherein the silver is purified, when melted along with lead and heated until all the lead is burnt out.

Mārāpa: When the purified leaves of silver are mixed with sulphur and haratāla (AS₂S₃) and subjected to puṭa, the remaining product mainly consists of a greyish black powder of silver oxide.

Rājāvartah

Synonyms: Nilāśma, Nṛpapalah, Suvarṇa-dhātu, Rājādrī, Āvarta-maṇih.

Description: Rājāvarta which has a bluish tint with a slight admixture of red, is heavy and smooth is to be preferred, (RRS, 4, 75). According to some other texts, rājāvarta which has the colours of a peacock's neck is to be preferred.

Medicinal Action:

Rasa	: Pungent and bitter
Guṇa	: Unctous and heavy
Vīrya	: Cold

It alleviates all the three doshas, is an excellent rejuvenative, is nourishing, appetizing, digestive, an aphrodisiac and is used in urinary disorders, tuberculosis, haemorrhoids, anaemia, hiccough, vomiting and alcoholism. (RRS, 4, 76; DN, 6, 60-61; RN 13, 64; RJN, Vol.III, page 249).

Comments:

Identification:

English	- Lapis lazuli
Hindi	- Lāj-vard

Occurrence: It is found in Iran, Afghanistan, parts of Asia and India (Rajasthan).

Rasa

The term Rasa is in general reserved for mercury, although it is equally applicable to a mineral or a metallic salt, (HHC, Vol.I).

There are three groups of rasas, namely

1. Mahārasas (the main rasas) which are eight in number—Abhraka (mica), vaikrānta, mākshika (pyrites), vimala, śilājatu (bitumen), sasyaka, chapala and rasaka, (RRS, 2, 1).

2. Uparasas (the inferior rasas) which are also eight in number: gandhaka (sulphur), gairika (red ochre), kāsisa (vitriol), kānkshi (alum), haritāla (orpiment), manah-śīla (realgar), añjana and kankushṭha. These are useful in operations of mercury, (RRS, 3, 1).
3. Sādhāraṇa rasas (the common rasas) which are also eight in number — kampilla, chapala, gowri-pāshāṇa (white arsenic), navasārakah (Sal ammoniac), kapardah, vahnijārah, hingula (cinnabar), girisindhūrah, and mṛddāra-śṛṅga. These are considered useful adjuncts to chemical operations, (RRS, 3, 126-127).

Śodhana: The sādhāraṇa rasas are purified by being boiled for three days in a dolā-yantra with the juices of mātulunga and ginger, (ibid, 147).

Rasakah

Synonyms: Kharparah, Kharparītutthah, Rīti-kṛt, Kshiti-kiṭṭah, Tāmra-anjakah.

Varieties: There are three kinds of rasaka according to Rasārṇava: (1) mṛttikā-rūpa, this is yellow in colour and is full of layers; (2) guḍa-rūpa, which has the appearance of jaggedy; and (3) pāshāṇa-rūpa, resembling stone particles. The first variety is most useful while the last one is useless. The guḍa-rūpa is inferior in quality when compared to the first kind.

According to RRS, rasaka is of two varieties: (1) durdarah, which has got layers (i.e. has a laminated structure), and (2) kāravellakah, which is non-laminated. The former is used mostly for the extraction of zinc (sattva-pātana) while the latter is employed for medicinal purposes, (RRS, 2, 149-150).

Rasaka is said to be extremely combustible, (RJN, Vol.II, page. 120; 2, 152).

Medicinal Action:

Rasa : Astringent and pungent
 Guṇa : Light
 Vīrya : Cold

It alleviates kapha and pitta, and is useful in tuberculosis, all urinary disorders and certain eye-diseases.

Note: Equal quantities of the bhasma of kharpara-sattva and kānta-loha-bhasma, eight gunja in quantity, are taken and kept in a decoction of triphala in a vessel made of kānta-loha overnight. The next morning this mixture is administered along with til oil. It is extremely useful in urinary diseases (including diabetes), tuberculosis, anaemia, swellings, abdominal tumours, rakta-gulma, all menstrual disorders, soma-roga, intermittent fever, dysmenorrhoea, cough, dyspnoea and hiccoughs, (RRS, 2, 169-172).

Śodhana:

1. Kharpara is purified and attains yellow colour if it is immersed in the juice of katu tumbi (a variety of alābu) and heated (while the liquid is being stirred), (ibid, 2, 154).
2. Rasaka is to be strongly heated and immersed in the juice of bijapūra. This has to be done seven times. If bijapūra is not readily available, urine of a man or a horse, or takra (buttermilk) or kānji can be made use of, (ibid, 155-156).

Māraṇa: RRS has not described any method for incinerating rasaka.

1. (Purified) kharpara is to be rubbed with mercury and subjected to heat by a vālukā-yantra for eight yāmas (24 hours), (RJN, Vol.II, page 123).
2. Kharpara is incinerated, and as such, cures all diseases, if it is subjected to heat by means of a lavaṇa-yantra, (ibid, page 124).

Sattva-pātana (Extraction of the Essence, Which is Zinc):

1. See extraction of zinc under yaśāda.
2. Kharpara is to be rubbed with (one fourth its quantity of) harītaki, śilājatu, earth worm, turmeric, soot and borax, and subjected to heat by andha-mūsha (closed crucible). By this method, the essence of rasaka is extracted.
3. Rasaka is to be taken along with (equal quantities of) lākshā (lac), jaggery, white mustard, harītaki, turmeric, gum resin, and ṭankana (borax) and finely powdered. The powder is then to be roasted with cow's milk and ghee. It is then made into a lump which is kept enclosed within a vṛntāka-mūsha, which is then heated. Heating is to be continued until whitish smoke is emitted through the hole in the crucible. The crucible is then taken from the fire and turned upside down carefully. In this manner, the essence which resembles tin is extracted, (ibid, 164-165).

Incineration of the Essence of Rasaka: The kharpara sattva is mixed with an equal amount of purified haritāla, placed within an earthen or iron vessel and heated, while being stirred all the while by an iron rod, (ibid, 168).

Comments:

Identification:

English - Calamine, Sphalerite or Zincite
Hindi - Khāparī
Marathi - Kal-khāparī
Gujarathi - Khāpario

Ratnas

Precious stones are classified into two groups:

1. The nine most important ones, the nava-ratnas.
2. Those of secondary importance, the upa-ratnas.

The nava-ratnas are marakata (emerald), pushpa-rāga (topaz), maṇikya (ruby), indra-nīla (sapphire), gomeda (sardonyx) and vaidūrya (cat's eye) (DN, 7, 62).

RRS however gives a different list of the five most valuable (emerald; padma-rāga (ruby); indra-nīla (sapphire), marakata (emerald), pushpa-rāga (topaz) and vajra (diamond) (RRS 4, 5).

According to other texts, the navaratnas are: mukta-phala (pearls), hīraka (diamond), vaidūrya (cat's eye), padma-rāga (ruby), pushpa-rāga (topaz), gomeda (Zircon or sardonyx), nīla (sapphire), marakata (emerald) and pravāla (coral) (DN, 7, 62).

The precious stones of secondary importance include kācha (glass), karpūraśma, mukta (pearls), śankha (conch) etc. (DN, 7, 63).

These ratnas are considered to have immense medicinal properties. They should however be purified before being administered.

The following are the defects found in the ratnas in general:

1. Grāsa, loss of transparency or presence of a stain.
2. Trāsa, presence of a discordant colour.
3. Bindu, presence of spots.
4. Rekhā, presence of cracks or lined spots.
5. Jala-gardabhā, presence of a bubble spot.

However, they are not affected by defects in the soil in which they are found, or in the water in which they are submerged, (RRS, 4, 33).

Śodhana: Māṇikya, muktā, pravāla, tārکشya, pushpa-rāga, vajra, nīla, gomeda and vaidūrya are purified by being boiled (for three hours, in a dolā-yantra) with the following, respectively: sour vegetable juices, juice of jayantī, a decoction of the ksharas, cow's milk, fermented liquids mixed with the decoction of kulattha, juice of taṇḍulīya, juice of nīla, gorochana and a decoction of triphala. (ibid, 60-62).

Māraṇa:

1. All the ratnas with the exception of vajra are incinerated by the following process: (Equal quantities of) mana-hśilā, gandhaka, haratāla and the purified and powdered ratna are made into a paste with the juice of lakucha. This paste has to be (placed within two crucibles and) subjected to heat by gaja-puta. After eight putas, bhasma of good quality is obtained.
2. The marana of ratnas can be done in the same way as that of vajra, (SaS, madhyama, 11, 91).

Ratna-druti (Solutionising of the Ratnas): A paste has to be prepared of the following substances: hingu, the five salts (panchalavaṇa), the three kshāras (kshāra-traya), meat juice, juice of amla-vetasa, nava-sāgara, croton seeds, bhall-ātaka, dravantī, rudantī, payasyā, root of chitraka and milky exudation of snuhi and arka. The ratna which has to be liquefied is placed within this paste. This has then to be enclosed by leaves of bhūrja (bhojpatra) and tied securely. It has then to be enclosed by a cloth and subjected to svedana (boiling) in a dola-yantra which is filled with the juices of all the sour drugs (amla-varga) and kānji. After three days (72 hours) of strong heating, the paste is taken out and the liquid is extracted. This druti is said to make the body as strong as steel, (RRS, 4, 64-69).

Romaka-lavaṇa

Synonyms: Sāmbaram

Description: The ancient texts such as SS, CS and AHṛ mention romaka as being a kind of salt belonging to the group of salts. (SS, sūtra, 46, 313; CS, vimāna, 8, 141; AHṛ, sūtra, 10, 27).

The later texts such as DN and RN consider the term romaka as being only a synonym of audbhida-lavana.

Ḍalhaṇa in his MS refers to romaka-lavaṇa as that which is found in Śākambara-deśa, (NiS on SS, sūtra, 42, 18).

According to MMH, it is the salt produced from the Sambar Lake near Ajmeer. It is obtained by the evaporation of salt-water in the shape of clear rhomboidal crystals.

RJN (Vol.III, page 290) has this to say of romaka-lavaṇa: "In the province of Jayapura (in Rajaputana), there is a salt water lake called Śākambara, now called Sambar. Its water is as saline as sea-water. The salt produced from the water of this lake is called 'romaka'. In ancient times, a river named Romavati (now extinct) flowed from this lake. The salt which was produced from the water of this river was also called 'romaka' salt."

Medicinal Action: See Lavana.

Saindhava-lavaṇam

Synonyms: Sindhujaṃ, Nādeyam, Śivam, Śuddham, Śilātmajam, Pathyam, Maṇimantham.

Medicinal Action:

Rasa	: Salty and sweet
Guṇa	: Light and unctous
Vīrya	: Cold
Vipāka	: Sweet

It alleviates all the three doshas, is beneficial to the eyes, is an aphrodisiac, appetizing, digestive, is a heart-tonic and is useful in ulcers, constipation, heart-diseases, eye-diseases, anorexia and hiccough.

Charaka considers this as the best among 'the salts' (CS, sūtra, 25, 37) and suitable for regular consumption, (ibid, 5, 12).

Identification:

English	- Rock-salt
Hindi	- Saindhā-namak

Marathi - Śende-loṇ
Gujarathi - Sindhā-lūṇ
Tamil - Intuppu

Occurrence:

Himachal Pradesh: The rock-salt deposits of Mandi are in a zone of limestone, shale and sandstone. Salt beds of considerable size occur here.

Khewra, Pakistan: The rock-salt deposits of Pakistan also constitute a prolific source of pure crystallized sodium chloride.

Sāmudra-lavaṇam

Synonyms: Sāgarajam, Vamśiram.

Medicinal Action:

Rasa : Saline, bitter and sweet
Guṇa : Heavy, slightly unctous and sharp
Vīrya : Slightly hot
Vipāka : Sweet

It aggravates kapha, alleviates vāta, is a purgative, deliquescent, digestive, appetizing and relieves abdominal colic.

Toxic Effects: If used in excess, salt produces debility, lethargy, weakness of joints, premature balding and greying of hair, and wrinkles on the skin, (CS, vimāna, 1, 18).

Comments:**Identification:**

English - Common salt
Hindi - Samudrī-namak, Namak
Persian - Namake-khurdam
Arabic - Milhuls-ājīn
Bengali - Nimok, Lesu
Kanada - Uppu

Occurrence: It forms 25% of the waters of the ocean. It is formed by evaporation of seawater.

Sasyaka

Synonyms: Śikhi-grīvam, Hema-sāram, Mayūrakam, Mayūra-tutthakam.

Description: Sasyaka which is heavy and has the play of colours as in the throat of the peacock is considered superior in quality, (RRS, 2, 126).

Medicinal Action:

Rasa : Pungent, astringent and sweet
Guṇa : Light
Vīrya : Hot

It alleviates all the doshas, confers longevity, antidotes poison, is emetic, a purgative and is useful in obesity, urinary calculi, skin diseases, dysuria, abdominal colic, abdominal tumours, leucoderma, pyrosis, constipation and eye-diseases, (SS, sūtra, 38, 37; RRS, 2, 128, RN, 13, 205-206).

Note:

1. It is one of the ingredients in a medicinal oil used externally in skin diseases, glandular swellings, anal fistula and burrowing ulcers, (SS, chikitsā, 9, 61).
2. It is also recommended as collyrium in diseases of eyelids, (SS, uttara, 12, 53).

Reference: CS, chikitsā, 7, 108.

Toxic Effects and Antidotes: Impure sasyaka is poisonous and causes many diseases like vomiting and vertigo. These can be counteracted by taking the juice of jambīra-rasa or water in which fried paddy is immersed, for three days, (RJN, Vol.II).

Śodhana:

1. It is to be subjected to bhāvanā with a decoction of the drugs of the rakta-varga and later saturated with a decoction of the drugs of the sneha-varga, (RRS, 2, 129).

2. Sasyaka can also be purified by boiling it in a dolā-yantra in the urine of a cow, buffalo and goat for 9 hours, (ibid, 130).

Māraṇa: Purified sasyaka is to be rubbed into a paste with equal amounts of sulphur, borax and the juice of lakucha. This is then placed within a blind crucible (andha-mūsha) and subjected to heat by kukkuṭa puṭa (thrice), (RRS, 2, 131).

Sattva-pātana:

1. The powders of sasyaka and one-fourth its quantity of borax are immersed for one day in the oil extracted from the seeds of karanja (Pongamia pinnata). The paste is then confined within a blind crucible and heated by means of a charcoal fire. By this process, the essence which has the blood-red colour of the indragopa insect is extracted, (ibid, 132-133).
2. Sasyaka is to be rubbed into a paste with a little quantity of borax and lemon juice and confined within a blind crucible and heated, until the essence in the form of copper is extracted, (ibid, 134).
3. See Tuttha.

Comments:

Identification:

English	- Peacock ore, Chalcantite
Hindi	- Tutiya
Persian	- Zake-sabz
Arabic	- Zajul-akhzar
Kanada	- Mayilu-tutta
Bengali	- Tutiya
Tamil	- Turichi
Man.	- Morchut

Occurrence: The main difference between tuttha and sasyaka is that the latter is met with free in nature, while the former is manufactured. However, in the absence of either of these two, the other may be used, (RJN. Vol.II, page 110).

Sattva-pātana: By this process, copper sulphate is converted to cuprous oxide (CuO) which is finally reduced to copper. Essence in the form of copper is obtained.

Śilājatuh

Synonyms: Aśmottham

Occurrence: Śilājatu oozes out in the heat of the sun from the bowels of gold, silver, copper and iron, (CS, chikitsā, 1, 3, 48). According to SS, it is mainly found in mountainous areas, (SS, chikitsā, 13, 6).

Description: It is oily, soft, smooth and clear, (CS, chikitsā, 1, 3, 55). That which looks black and glossy, is heavy, devoid of sandy particles, and smells like the urine of a cow is considered best, (SS, chikitsā, 13).

Varieties: CS mentions four kinds of śilājatu based on its source — (1) Suvarṇaja, that which has gold as its source is sweet, bitter, cold, with a pungent vipāka and resembles a japā (hibiscus) flower. (2) Roupyaja, that which originates from silver is pungent, cold, with a sweet vipāka and is white in colour. (3) Tāmraja, that which comes from copper is bitter, hot, has a pungent vipāka and resembles a peacock's throat. (4) Lohaja, that which originates from iron is saline, bitter, cold, with a pungent vipāka, and resembles guggulu (gum resin of Commiphora mukul). Lohaja is considered most useful, (CS, chikitsā, 1, 3, 57-61).

A few later texts mention śilājatu as also exuding from heated rocks containing lead and tin.

RRS considers there are two varieties of śilājatu — (1) gomūtra-śilājatu, which has the smell of cow's urine. This is further of two kinds, that which has the essence and that which does not. (2) Karpūra-śilājatu, which has the smell of camphor.

Śilājatu of the former variety which has the essence is said to be extremely efficacious, (RRS, 2, 109).

Test of Excellence:

1. Śilājatu of good quality does not emit smoke when sprinkled on a fire. It instead attains a rounded shape. It does not dissolve in water, (RRS, 2, 114).
2. Genuine śilājatu will burn without emitting any smoke and when burnt, assumes the appearance of oxidised iron (lauha-kittā). If thrown in water, by means of the pointed ends of grass, it will sink in the shape of threads, (RJN, Vol.II, page 89).

Medicinal Action:

Rasa	: Bitter, pungent and astringent
Guṇa	: Cchedana
Vīrya	: Slightly hot
Vipāka	: Pungent

It alleviates all the doshas, confers longevity, antidotes poison, strengthens the body, increases intelligence and memory, is an aphrodisiac, emaciating and is useful in all urinary diseases (including diabetes), skin diseases, epilepsy, insanity, elephantiasis, tuberculosis, swellings, haemorrhoids, abdominal tumours, anaemia, intermittent fever, dyspnoea, dysuria, obesity, ascites, worms, urinary calculi, enlargement of liver and spleen and chest pain, (CS, chikitsā, 1, 3, 50; RRS, 2, 115-116).

Note:

1. There is scarcely a disease afflicting the human race, which is not relieved or cured by śilājatu, taken either alone or with other drugs, (CS, chikitsā, 1, 3, 65).
2. A tulā measure of śilājatu taken in gradually increasing doses enhances the complexion and strength and confers a life span of a hundred years, (SS, chikitsā, 13, 10).
3. An equal amount of purified śilājatu and loha-bhasma taken with milk by a person who takes a sufficient quantity of milk, strengthens the body, confers excellent health, increases memory and intelligence and acts as a rejuvenative, (CS, chikitsā, 1, 3, 51-54).

Diet: A person who is being administered śilājatu should avoid food which is sour, fried, which is hard to digest, kulattha, flesh of pigeons, excessive exertion, exposure to sun and wind, and agitation.

He should freely partake of pure rain water, milk, buttermilk and various gruels, (CS, chikitsā, 1, 3, 62-64).

Toxic Effects: Impure śilājatu gives rise to burning pains, syncope, vertigo, diseases of impure blood, bleeding from internal organs, constipation and loss of appetite, (RJN, Vol.II, page 103).

Antidote: The diseases due to improper use of śilājatu may be cured by taking, maricha (black pepper) (in doses of $\frac{1}{4}$ of a tola a day) mixed with ghee, for seven days, (ibid).

Śodhana:

1. Śilājatu can be purified by heating and immersing it in a decoction of triphala, seven times, (CS, chikitsā, 1, 3, 51).
2. It can also be purified by subjecting it to bhāvanā with a decoction of the drugs of the sālasāradi group. (This has to be done for ten, twenty or thirty days, NiS), (SS, chikitsā, 13).
3. Śilājatu can be purified if it is rubbed for one day each with cow's milk, a decoction of triphala and the juice of bhṛṅga-rāja in an iron vessel and later dried in the sun, (SaS, madh-yama, 11, 92-93; RJN, Vol.II, page 90).
4. Śilājatu is to be finely powdered or cut into pieces and washed with pure water. It is then exposed to the smoke of burnt

agaru, nimba leaves, ghee and guḍūchi. It is then immersed in extremely hot water (or a decoction of triphala) for three hours. It is next to be rubbed well and filtered through a piece of cloth into an earthen (or iron) vessel, and exposed to sunlight. The cream-like substance which collects on the surface of the liquid is collected in another vessel. This has to be done for about two months. The remaining liquid is again mixed with hot water and exposed to the sun. The cream-like substance is pure śilājatu which can be used for all purposes, (SaS, madhyama, 11, 94-98; RJN, Vol.II, page 90-91).

Māraṇa: While purified śilājatu can be used for medicinal purposes, RRS describes the process of incinerating it:

Purified śilājatu is rubbed with the juice of mātulunga and equal quantities of manahśilā, gandhaka and haritāla. It is then subjected to heat by puṭa, making use of eight cow-dung cakes, (RRS, 2, 119).

Sattva-pātana: Śilājatu is to be rubbed with the drugs of the drāvaṇa group and the sour group (amla-varga), dried, placed within two crucibles and heated strongly over a fire made of coals and blown by means of bellows. The essence which has the appearance of iron is thus obtained, (ibid, 122).

Comments:

Identification:

English	- Bitumen, Asphaltum
Hindi	- Śilājīt
Persian	- Momiai-faqrul-yahud
Arabic	- Hajar-ul-musa
Malayalam	- Śilājīt
Tamil	- Kalmatam

Sindūram

Synonyms: Rakta-renuh, Nāga-garbham, Śisopadhātuh, Vira-rajam, Śṛṅg-āra-bhūṣaṇam, Śimantakam, Śoṇam, Sandhyā-rāgam, Mang-alyam.

Description: It is of good colour, bears heat, is subtle, unctous, clear, heavy, soft and gives off a gold-like powder, (RN, 13, 163).

Medicinal Action:

Rasa	: Bitter and pungent
Vīrya	: Hot

It antidotes poison, is an excellent purifier of blood, hastens healing of fractures, wounds and ulcers, and is useful in skin diseases, pruritus, herpes, chronic fevers, and foul smelling ulcers, (DN, 5, 101-102; RN, 12, 160-162).

Note: It is used as one of the ingredients in a medicated oil used externally for skin diseases, glandular swellings, anal fistula, ulcers, etc. (SS, chikitsā, 9, 61).

Śodhana: Sindūra is purified by subjecting it to bhāvanā with cow's milk and the juice of the sour group, (AP, 4, 90).

Comments:

Identification:

English	- Red oxide of Lead
Hindi	- Śindūr, Ingur
Persian	- Suranj-sang
Marathi	- Śendūr
Arabic	- Isrīnj
Telugu	- Chentūram

Sourāshṭrī

Synonyms: Kāṅkshī, Ajitā, Tuvārī, Mṛtsnā, Mṛtālakam, Phaṭikā, Mṛttikā, Sangā, Bhūghnī, Surāshṭrajā

Varieties: There are two varieties of alum, viz. (1) Phaṭakī, which is slightly yellow, heavy and unctous, and (2) Phullikā, which is whitish, light, unctous and sour, (RRS, 3, 63-65).

Medicinal Action:

Rasa : Pungent, sour and astringent
Virya : Hot

It alleviates all the three doshas, antidotes poison, is beneficial to the eyes, throat and hair, assists in the contraction of the uterus, and is useful in leucoderma, herpes, ulcers, pruritus, (hard) chancre, vomiting, sprue, intermittent fever, haemorrhages, looseness of teeth and diseases of the mouth.

Note:

1. It is one of the ingredients in a medicinal oil used externally in worms and pruritus, (CS, chikitsā, 7, 114).
2. It is used in insanity, (SS, uttara, 62, 31), and in ulcers, (SS, chikitsā, 1, 59).
3. It is one of the ingredients in a powder given internally in heart diseases, anaemia, sprue, abdominal tumours and colic, fever, jaundice and diseases of the mouth, (CS, chikitsā, 15, 138).
4. It is administered internally with a few other drugs in menorrhagia engendered by kapha, (ibid, 30, 98).

Śodhana: It is purified if it is immersed in (a little quantity of) kanjika, for three days.

Sattva-pātana: It is to be rubbed with kshāras and sour drugs (made into a lump, dried, placed within two crucibles) and heated (by means of the sattva-pātana-koshṭhī). By this process, the essence of sourāshtrī is extracted.

Comments:

Identification:

English - Alum
Hindi - Phitkarī
Persian - Shab-i-yemini
Arabic - Šibba, Shabb-zafe-abyaz
Marathi - Turatī
Bengali - Phaṭkiri
Kanada - Phaṭikāra
Tamil - Phaṭikāram

Occurrence: Chiefly found in alum earths of Nepal, or prepared from alum shales in Punjab, Rajasthan, Bihar and Kutch.

The fragrant earth produced in the mountains of Saurashtra (Surat) is known as tuvari, which dyes cloth and fixes the colour of madder, (RRS, 3, 62).

Alums are not natural but secondary products manufactured out of pyritous shales or 'alum shales'. Pyritous shales when exposed to air, under heat and moisture, give rise to oxidation of the pyrites, producing iron sulphate and free sulphuric acid. The latter attacks the alumina of the shales and converts it into aluminium sulphate. On the addition of potash salts, such as nitre or common wood-ashes, potash-alum is produced, and when common salts or other soda-salts are introduced, soda-alum is produced.

Souvarchala-lavaṇam

Synonyms: Aksham, Ruchaka, Hrdaya-gandhakam, Tilakam, Drāvikam, Kṛshṇa-lavaṇam, Ūshara-kshārah.

Occurrence: "Earth, taken out from the banks of the Ganga or any other salty earth is to be dissolved in pure water and then filtered through a piece of thick cloth. This water is next to be kept in an earthen pot for about 12 hours to settle. The clearest part of this solution is then to be taken out and heated till it gets condensed. The product, which is of white

colour is then to be taken out. It is called ūshara or sora." (RJN, Vol.III, page 268).

Medicinal Action:

Rasa : Pungent and saline
Gūṇa : Light and viśada (non-sticky)
Virya : Hot

It alleviates vāta, antidotes poison, is aromatic, subtle, appetizing, a laxative, digestive, a heart-tonic, and is useful in flatulence, constipation, abdominal colic and tumours and worms, (CS, sūtra, 27, 301; CS, sūtra, 1, 88; SS, sūtra, 46, 317; RN, 6, 38-39; DN, 2, 30-31).

Comments:

Identification:

English - Sonchal salt (salt-petre, Potassium nitrate, acc. to HHC, Vol.I).
Hindi - Sonchar, Kālā-namak
Marathi - Pāde-loṇ
Bengali - Sanchar-lavan
Gujarathi - Sanchal-lūṇ

Souvīrāñjanam

Synonyms: Anjanam, Mechakam, Kṛsh-ṇam, Kapotam, Yāmuneṇyam, Srotojam, Nādeyam, Dṛk-pradam, Nīlam, (DN, 3, 151; RN, 13, 214).

Medicinal Action:

Gūṇa - Heavy and unctous
Virya - Extremely cold

It alleviates pitta, antidotes poison, facilitates the healing of wounds, is beneficial to the eye-sight, confers longevity and is useful in hiccoughs, ulcers, bleeding from internal organs, menorrhagia and eye-diseases, (RRS, 3, 102; DN, 3, 151).

Note:

1. CS recommends the daily application of souvīrāñjana as collyrium. It is considered soothing when compared to rasāñjana which causes smarting of the eyes and lachrymation, (CS, sūtra, 5, 15).
2. SS advises its use in certain eye-diseases, (SS, uttara, 17, 13-14).

Occurrence: According to AP, souvīr-āñjana is a variety of sroto-āñjana. While the latter occurs in the form of ant-hills (valmīka-śikhara) which are black in colour, souvīrāñjana is smoke-coloured or yellowish-white (pāṇḍura).

According to Chakrapani datta (on CS, sūtra, 5, 51), souvīrāñjana is to be found on the banks of the Suvīra river.

Sphaṭikah

Synonyms: Sitopalāh, Amala-maṇih, Svachchah, Śiva-priyam.

Description: Charaka considers sphaṭika to be a ratna (precious stone), (CS, chikitsā, 1, 4, 22).

It is pure like a drop of Ganga water, has no covering, is extremely translucent, is cold, pleasing, and even when rubbed against a stone retains its clarity, (RN, 13, 53).

Medicinal Action:

Virya : Cold

It alleviates pitta, improves eye-sight, antidotes poison, is emaciating, auspicious and relieves burning pains, (SS, sūtra, 46, 329-330; RN, 13, 54-56).

Comments:

Identification:

English - Rock crystal;
Persian - Billor

Sroto-āñjanam

Synonyms: Vāribhavam, Srota-nadībhavam, Souvīra-sāram, Valmika-śīrsham.

Description: It occurs in the form of ant-hills, when broken into pieces it resembles nīlotpala (blue lotus), and when rubbed against a whet-stone gives off a substance resembling red ochre, (RRS, 3, 109).

Medicinal Action:

Rasa : Astringent, sweet and pungent
Guṇa : Unctous
Vīrya : Cold

It alleviates kapha and pitta, antidotes poison, purifies the blood, is emaciating, beneficial to the eyes, promotes the growth of breasts, and is useful in hiccoughs, vomiting, worms, pruritus, burning pains and watering of eyes. (CS, chikitsā, 24, 18; RRS, 3, 104, 109; RN, 13, 21).

Note:

1. It is useful in vomiting, (CS, chikitsā, 20, 29).
2. It is employed as collyrium in eye-diseases, (SS, uttara, 11, 14).

Comments:

Identification:

English - Black sulphide of antimony
(Lead-grey stibnite)

Occurrence: Sulphide of antimony, stibnite, is found in deposits of considerable size at the end of the Shigri glacier in the Himalayan region of Lahoul (Kangra). Stibnite is also found in Vishakapatnam and Hazaribagh. Small quantities of stibnite and antimony occur in veins in the quartzose rocks in Chitradurga district.

Sūrya-kāntah

Synonyms: Dīptopalāh, Agni-garbhah, Jvalanāśmā, Vasu-nāmā.

Description: It is pure, unctous, smooth, has no covering, gives off heat when exposed to with the sun, and dust when exposed to air. (RN, 13, 59).

Medicinal Action:

Vīrya : Hot

It alleviates kapha and vāta, is a brain- tonic and bestows long life, (RN, 13, 57). It is useful in removing moles, birth marks, etc. (AS, uttara, 37). RRS (4, 2) considers it to be one of the "precious stones".

Comments:

Identification:

English - Sun-stone
Hindi - Sūrya-kānta-maṇi

Suvarṇam

Synonyms: Kanakam, Śāta-kumbham, Jambūnadam, Pītakam, Hiraṇyam.

Description: It is red when heated, but white when cut into pieces. It leaves a saffron-like (kumkuma-prabha) tint when rubbed against a whet-stone, (RN, 13, 6; RJN, Vol.II, page 238).

Test of Excellence: That gold which is devoid of impurities, is soft, unctous and heavy is considered to be of good quality.

That, on the other hand, which is hard, white, dry and coarse, full of layers, and which turns blackish when heated or cut into pieces and leaves a white mark on the whet-stone is to be avoided, (RJN, Vol.II, page 238).

Varieties: There are five varieties of gold — (1) Prākṛta, of mythical origin, (2) Sahaja, natural, (3) Vahni-sambhūta, of celestial origin, (4) Rasa-vedhaja, obtained by chemical processing, and (5) Khanija, which is begot of mines, (RRS, 5, 2).

Medicinal Action:

Rasa : Sweet, bitter and astringent
 Guṇa : Heavy, unctous and slimy
 Virya : Cold
 Vipāka : Sweet

It alleviates all the doshas, antidotes all poisons, improves eye-sight, lustre, intelligence, memory and voice, confers longevity, is an aphrodisiac, appetizing, a heart-tonic, strength-giving, nourishing, auspicious and is useful in epilepsy, insanity, fevers and tuberculosis.

Note:

1. Suvarṇa-bhasma of good quality has the colour of jambū. (AP, 3, 76).
2. It is recommended as a rejuvenative, (CS, chikitsā, 1, 3, 23-29).
3. It is given to infants with ghee, honey, vachā and kushṭha for improving their mental and physical growth, (SS, śārīra, 10, 68).
4. It antidotes poisons, and is useful in worms, thirst, anaemia, heart-diseases and urinary disorders, (SS, sūtra, 38, 62).
5. Suvarṇa-bhasma, if taken with the anupāna of ghee and black pepper in doses of two guñjā, enhances immunity, bestows strength, antidotes all poisons and is useful in anaemia, tuberculosis, cough, anorexia, etc., (RRS, 5, 18).
6. Suvarṇa-bhasma if taken with bhṅgarāja juice is an aphrodisiac; with milk is strength-giving; with the juice of punarnava, improves eye-sight; with ghee, is rejuvenative; with vachā,

improves memory and intelligence; with kunkuma, enhances lustre; with cow's milk, cures tuberculosis; with nirvishā, antidotes poison; and with dry ginger, lavanga and black-pepper, cures insanity, (RJN, Vol.II, page 257- 258).

7. In cases of poisoning, after emesis and purgation, a fine copper dust (or tāmra-bhasma) is administered with honey in order to protect the heart. And suvarṇa-bhasma is later administered in doses of one śāṇa. Through this therapy, the body gains enough strength to withstand all poisons, (AP, 3, 31-32).
8. Suvarṇa-bhasma, if administered with honey and āmalaki, even to a dying patient revives him, (ibid, 37).

Toxic Effects: Impure gold engenders many diseases and may even cause death, (RRS, 5, 11).

Śodhana:

1. The leaves (or sheets) of gold are to be heated over a fire and immersed in til oil, buttermilk, kānji, cow's urine and a decoction of kulattha. This has to be done three times (seven times according to RRS). The same process is employed for purification of silver, brass, copper and iron, (SaS, madh-yama, 11, 2, 3).
2. Thin sheets of one karsha of gold are smeared with a paste of saindhava (rock-salt) and suvarṇa-gairika (red ochre). It is then enclosed within two crucibles and heated over a charcoal fire for one and a half hours. By this method, gold will be purified, (RRS, 5, 12).
3. Pure gold is to be melted and immersed in the juice of kānchanāra (Bauhinia variegata). This process has to be performed thrice, resulting in the purification of gold, (RJN, Vol. II, page 244).

Māraṇa: In general, the incineration (bhasmī-karaṇa) of metals (including gold, etc.) with the help of mercury is considered best. With the aid of vegetable drugs it is considered less useful, while incineration with the help of sulphur is least useful, (RRS, 5, 14).

1. Leaves of gold so thin as to be pierced with thorns are smeared with a paste of pār-ada-bhasma and the juice of mātulunga. They are then (enclosed within two crucibles and) subjected to ten puṭas, (ibid, 15).
2. Thin leaves of gold are to be rubbed well in a mortar with half the amount of purified mercury, and made into a lump. Two crucibles are taken and the powder of nāga bhasma (equal in quantity to that of gold) is sprinkled over their internal surfaces. The lump is then confined within the crucibles and subjected to heat by puṭa. By this process, excellent suvarna-bhasma is obtained, (RRS, 1, 252; RJN, Vol. II, page 254).
3. Pārada-bhasma, one-fourth the quantity of gold is made into a paste with the juice of any sour drug (e.g. matulunga). This paste has to be smeared over thin leaves of purified gold. The gold leaves have then to be subjected to heat by puṭa. About eight puṭas would be required to fully incinerate gold, (RRS, 5, 17).

Comments:

Identification:

English	- Gold, Aurum
Hindi	- Sonā
Persian	- Zarā
Marathi	- Sone
Arabic	- Zaheb
Kanada	- Chinnna, Bangāra
Tamil	- Ponnu

Occurrence: Gold occurs in India both as native gold associated with quartz veins of reefs and

as alluvial gold in the sands and gravels of several rivers. More often it gets liberated by weathering and particles of gold get concentrated in river and stream sands at certain places. Such deposits are known as 'placer deposits' from which gold is recovered by panning. The principal sources of this precious metal in India, however, are the quartz reefs traversing the Dharwar rocks of Kolar district (Karnataka) which are auriferous at a few places.

Many of the rivers draining the crystalline and metamorphic tracts in India, are reputed to have auriferous sands.

Śodhana: In the second process, rock salt acts as a flux and cleans the thin sheets of gold.

Svarjikā-kshārah

Synonyms: Sarji-kshārah, Suvarchikā, Sukhavarachah, Vasūpamah

Medicinal Action:

Rasa	: Pungent
Guṇa	: Sharp
Vīrya	: Hot

It alleviates kapha and vāta, is an aphrodisiac, a digestive, aggravates bleeding from internal organs, and is useful in abdominal tumours, constipation, enlargement of the liver and spleen, coryza, sprue, haemorrhoids, flatulent distension of the abdomen, worms and ulcers, (SS, sūtra, 46, 322; DN, 2, 20; RN, 6, 26).

Note:

1. Suśruta recommends it in diseases of the mouth, (SS, chikitsā, 22, 8).
2. Charaka has included it in a medicinal oil used externally in skin diseases, (CS, chikitsā, 7, 114).

Comments:**Identification:**

English	- Refined Natron, Sodium Carbonate
Hindi	- Sajjī-khār
Persian	- Shikhara
Arabic	- Tile-milahul-gile

Occurrence: Crude carbonate of soda is an alkaline earth found in large quantities where white granite forms the sub-soil. It is generally found in the hot weather as an efflorescent sandy deposit covering large tracts of open country, (IMM, Vol.II).

"Some quantity of this earth is to be dissolved with four times its weight of water. The solution is next to be distilled several times through a piece of thick cloth. The solution, thus distilled, is next to be heated and condensed into a solid alkaline substance, called swarjī-kshāra." (R.JN, Vol.III, page 272).

Tāmram

Synonyms: Mleccha-mukham, Śulbam, Raktakam, Udumbaram, Nepāla-kam, Ravi-lauham, Tryambakam.

Extraction: The extraction of copper from the pyrites was first described in Rasārṇava, (87, 12-13). The process according to RRS:

1. "Sasyaka (blue-vitriol) and one-fourth its weight of borax are soaked in the oil extracted from the seeds of karanja (Pongamia pinnata) for one day and then enclosed in a covered crucible and heated by a charcoal fire. By this method, copper which is blood-red in colour is extracted." (2, 126-127).
2. "Bell-metal (kāmsya), mixed with a little amount of orpiment is subjected to fire by a blow pipe (vanka-nāla). The tin will be burnt away leaving copper. This

copper is called ghoshā-kr̥ṣṭa-tāmra. This is however not pure copper." (8, 38).

Description and Varieties: There are two varieties of copper—(1) Nepālaka, brought from Nepal. This is unctous (as if smeared with oil), soft, reddish in colour, malleable (capable of resisting hard strokes) and heavy; and (2) Mleccha, dug out of the mines in other countries. This is brownish, with black or white tints, causes vomiting, is extremely hard and assumes a black colour even after repeated washing. The former is considered to be of superior quality, (RRS, 5, 42-44).

Medicinal Action:

Rasa	: Astringent, sweet, bitter and sour
Guṇa	: Light
Vīrya	: Cold
Vipāka	: Pungent

It alleviates kapha and pitta, antidotes poison, improves eye-sight, hastens the healing of wounds, is a laxative, and is useful in anaemia, ascites, haemorrhoids, skin diseases, cough, dyspnoea, tuberculosis, coryza, swellings, fever, pyrosis, worms, obesity, abdominal colic and tumours, enlargement of the spleen and liver, urinary disorders (including diabetes), sprue and constipation, (SS, sūtra, 46, 367; RRS, 5, 46; DN, 6, 10-12; RN, 13, 12-13).

Note:

1. It is recommended as a tonic and rejuvenative, (CS, chikitsa, 1, 58).
2. It antidotes poison, especially gara-visha, and is useful in worms, thirst, heart-diseases, anaemia and urinary disorders, (SS, sūtra, 38, 62).
3. Tāmra-bhasma should be administered in doses of one ratti, along with the juice of śālmali (Bombax malabaricum), honey and ghee, for six months, the diet consisting of milk, sugar-candy, and rice

with ghee, without any sour substance. By this treatment, there will be an increase in strength, lustre, growth and eye-sight, (RJN, Vol.II, page 287- 288).

4. Tāmra-bhasma, rubbed with honey and ginger juice, taken in the morning in doses of two guṇja relieves all varieties of udara roga. (ascites, etc.), (ibid, 288).

Toxic Effects: Impure copper engenders skin diseases, vertigo, syncope, intermittent fevers, purging, vomiting, sterility, impotence, burning pains, perspiration, and mental diseases, (RRS, 5, 47-48; DN, 6, 12).

Śodhana:

1. Copper leaves are to be heated over a fire and immersed in til oil, buttermilk, kāñji, cow's urine and a decoction of kulattha. This has to be done three times (seven times, according to RRS). By this method, copper is purified, (SaS, madh-yama, 11, 2, 3).
2. Leaves of copper of a good quality are to be smeared with a paste of saindhava (rock-salt) and lemon juice. They are then to be heated and immersed in souvīraka (gruel of barley). This process has to be performed eight times, (RRS, 5, 50).
3. Copper leaves are to be smeared with a paste of saindhava lavaṇa and lemon juice. They are then heated and immersed in the juice of nirguṇḍi, eight times, (ibid, 51).

Māraṇa:

1. The purified copper leaves are smeared with a paste of purified pārada and gandhaka (converted first into kajjali), with the juice of jambīra. They are then subjected to heat by gajapuṭa, three times, (RRS, 5, 51).
2. Thin leaves of purified copper are kept immersed in cow's urine for five yāmas (15 hours) (in an earthen vessel). Later, an equal amount of mercury and double

the amount of sulphur are put into the vessel. The leaves of chāngeri (Oxalis corniculata) made into a paste are also placed on the copper leaves. The mouth of the vessel is then firmly closed and the vessel is subjected to heat for three hours. The tāmra-bhasma got by this method can be used for all purposes, (ibid, 56-58).

Comments:

Identification:

English	-	Copper
Hindi	-	Tāmbā
Persian	-	Misa
Marathi	-	Tāmbe
Arabic	-	Nehās
Tamil	-	Śembu
Kanada	-	Tāmrā

Occurrence: Native copper occurs in nature only sporadically, However, the golden yellow sulphate of copper is more freely available.

Extraction: The second process: This method of obtaining copper is seldom done. However, in this method kāmśya (bronze) mixed with orpiment and subjected to high heat, facilitates the removal of tin which has a lower melting point leaving behind copper.

Māraṇa: In this process sulphur combines with copper forming copper sulphide (CuS). When the temperature rises to the maximum in the puṭa process, mercury sublimes, leaving behind copper sulphide as a major constituent along with some copper oxide.

Ṭankaṇah

Synonyms: Soubhāgyā, Drāvī, Ṭankaṇa-kshārah, Rasādhikah, Loha-drāvī, Rangadah, Vartulah, Kanaka-kshāram.

Varieties: There are two varieties —(1) Sādhārana (ordinary borax), and (2) Śveta (white-coloured borax), (RN, 6, 29-32).

Medicinal Action:

Rasa	: Pungent
Guṇa	: Dry and sharp Unctous (the white variety)
Vīrya	: Hot

It alleviates kapha and pitta, aggravates vāta, antidotes inorganic poison, is appetizing, digestive, and is useful in abdominal tumours, haemorrhoids, sprue, catarrh, cough and dyspnoea, (SS, sūtra, 46, 325; RRS, 19, 89; BP, pūrva; DN, 2, 22-24; RN, 6, 28-30).

The white variety alleviates kapha and vāta, antidotes poison and is useful in tuberculosis, indigestion, dyspnoea, cough and constipation, (RN, 6, 31-32).

Comments:**Identification:**

English	- Borax
Hindi	- Suhāgā
Persian	- Tankār
Arabic	- Burackes
Kanada	- Bīlīgara
Tamil	- Vengāram
Telugu	- Velligāram

Occurrence: Borax occurs as a precipitate from the hot springs of the Puga valley, Ladakh, in association with some sulphur deposits.

In Tibet, borax is an ingredient of many of the salt-lakes, along with other salts of sodium. The borax of the Tibetan lakes is obtained either by means of digging on the shores of the lakes or by the evaporation of their waters. The original source of the borax of these lakes is believed to be hot springs, like those of Puga.

Tuttham

Synonyms: Vitunṇakam, Śikhi-grīvam, Mayūrakam.

Varieties: Some texts mention two varieties of tuttha, viz. (1) Mayūra-tuttha, also called sasyaka, and (2) Kharparī-tuttha, (Chkp. on CS, chikitsā, 7, 108).

Medicinal Action:

Rasa	: Astringent, pungent and alkaline
Guṇa	: Light
Vīrya	: Cold

It alleviates kapha and pitta, antidotes poison, enhances eye-sight, is an emetic, a laxative, emaciating and is useful in skin diseases, urinary calculi, pruritus and worms, (BP, pūrva, 6, 67).

Occurrence: It is manufactured from copper and sulphur. BP considers this to be an upadhātu (subsidiary metal) of tāmra, (BP, pūrva, 6, 66).

Śodhana:

1. Tuttha is to be rubbed into a paste with the juice of jambīra, and then subjected to heat by laghu puṭa. It is later subjected to bhāvanā with mastu for three days, (RJN, Vol.II, page 105).
2. Tuttha is to be rubbed with half its weight of sulphur and then subjected to heat by puṭa, (ibid, page 106).

Sattva-pātana:

1. Tuttha is to be smelted with an equal quantity of borax in kosṭhikā-yantra. By this method, its essence is extracted, (ibid, page 107).
2. Tuttha is to be powdered well and immersed in lemon juice in an iron vessel for seven days. By this process, the essence can be extracted without the application of heat. See Sasyaka.

Comments:**Identification:**

English	-	Copper Sulphate, Blue Vitriol
Hindi	-	Tutiya, Nīla-thothhā
Persian	-	Zāke-sabz
Arabic	-	Zājul-akhzar
Kanada	-	Mayilu-tuttu
Bengali	-	Tūtiya
Tamil	-	Tūrichi, Mayil-tuttham
Man.	-	Morchūt

Sattva-Pātana: When tuttham is heated in a closed crucible with borax, the essence in the form of copper is obtained.

Vaidūryam

Synonyms: Ketu-ratnam, Abhra-loham, Bāla-vīyajam.

Description: It is three-fold in its appearance, pale white like the bamboo stem or palāśa (*Butea frondosa*), tawny coloured (pingala) and like the neck of a peacock. That which is extremely clear, heavy, free from impurities, and becomes clearer when rubbed against a whet-stone or another vaidūrya is considered superior, (RN, 13, 47).

Medicinal Action:

Rasa	: Sour and sweet
Virya	: Cold

It enhances strength, vision and intelligence, is rejuvenative, appetizing, a laxative, nutritive, and is useful in abdominal tumours, and bleeding from internal organs, (RRS, 4, 59).

Note:

1. It is useful in eye-diseases and as an antidote to poisons, (CS, chikitsā, 26, 246; 23, 252-253).
2. It is emaciating, (SS, sūtra, 46, 329).

Comments:**Identification:**

English	-	Chrysoberyl, Cat's Eye
Hindi	-	Lah-suniyā

Vaikrāntam

Synonyms: Bhūmi-rajah, Gonasam, Kshudra-kulisām, Jirṇa-vajram, Chūrṇa-vajram, Nīcha-vajram.

There was a controversy regarding the identification of vaikranta. Some authorities regarded it as being flourspar (Calcium fluoride), while others considered it to be tourmaline. From the description of vaikranta, however, it appears almost certain that it is flourspar.

Occurrence: It is available both to the north and south of the Vindhya mountains, (RRS, 2, 58).

Description: It is a crystal with eight edges, eight facets, and six angles. It is smooth, heavy, and clear, with the colour of the rainbow, (RRS, 2, 53; RN).

Varieties: There are eight varieties, based on the colour: white, red, yellow, blue, blue-black, variegated, black and the colour of the pārāvata (turtle-dove), (RRS, 2, 54).

Medicinal Action:

Rasa	: All the six rasas
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It alleviates all the doshas, antidotes poison, is an excellent rejuvenative, is strength-giving, an aphrodisiac, appetizing, and is useful in skin diseases, fever, cough, tuberculosis, dyspnoea, sprue and urinary disorders. It enhances intelligence and complexion. It can be used as a substitute for diamond.

Toxic Effects: If used without purifying, it engenders heaviness of the body, anaemia, fever, rheumatic pain, skin diseases and anorexia, (DN, 6, 48).

Vāluka

Synonyms: Sikatā, Sīrā, Loha-mātā, Abhralohinī, Siktā, Nānā-dhātu-mayī, Bahu-varnā, Sītālā, Pravā-hotthā, Śūkshma-śarkarā.

Medicinal Action:

Rasa : Sweet
Vīrya : Cold

It relieves fever, removes fatigue and is useful in ulcers. When used externally for fomentation, it alleviates vāta, (BP, pūrva, 6, 149; DN, 6, 19-20).

Identification:

English - Sand (quartz)
Hindi - Bālu
Persian - Reg
Arabic - Ramal

Vangam

Synonyms: Trapuh, Anilam, Rangam, Picchaṭam, Pūtigandham.

Varieties: Tin is of two kinds — (1) Khurakam, which is soft, white, unctous, readily fusible, heavy and does not clink when struck. This is endowed with superior qualities, and (2) Miśrakam, which is dirty-white, (RRS, 5, 153-154).

Medicinal Action:

Rasa : Bitter, astringent and salty
Guṇa : Light, dry and sharp
Vīrya : Hot

It alleviates kapha, enhances strength, eye-sight and complexion, is appetizing, digestive, a purgative, an aphrodisiac, rejuvenative and is useful in all forms of urinary disorders (including diabetes), worms, vomiting, obesity, anaemia, dyspnoea and tuberculosis.

Note:

1. SS indicates its usefulness in gara-visha, cases of poisoning, worms, thirst, heart-diseases, anaemia and urinary disorders, (SS, sūtra, 38, 62).
2. Vanga-bhasma given with the juice of dhātri (*Embelica officinalis*) relieves even troublesome cases of urinary disorders, with the juice of śatāvari (*Asparagus racemosus*) it cures dysuria, with the juice of paribhadra (*Erythrina indica*) it is useful in polyuria, with turmeric powder it cures menorrhagia, with the juice of kūshmāṇḍa (*Benincasa cerifera*), sugar-candy and honey, it relieves bleeding from internal organs, tuberculosis, cough and dyspnoea; with the juice of kaṇṭakāri (*Solanum xanthocarpum*) it is beneficial in all forms of cough, (Gūḍārtha-dīpikā, common SaS, madhyama, 11, 40-43).

Toxic Effects: When improperly purified, it brings about abdominal tumours, skin diseases, urinary disorders (including diabetes), glandular swellings, anal fistula, swellings, leucoderma, urinary calculi, abscesses, diseases of kapha and vāta, fever, tuberculosis and blood poisoning, (DN, 6, 16-17).

Antidotes: Mesha-śṅgī taken with sugar-candy for three days serves as an antidote, (RJN, Vol.III, page 120).

Śodhana:

1. Khuraka-vanga is to be melted over a fire and immersed in the juice of nirguṇḍī, to which a little turmeric powder is added. This process has to be performed three times, (RRS, 5, 156).
2. Thin leaves of tin are to be boiled for one and a half hours in lime water in a dolā-yantra, (RJN, Vol. III, page 105).
3. Tin is to be melted and immersed three times each in til oil, butter-milk, kāñji, cow's urine, decoction of kulattha and the milky-juice of arka, (SaS, madhyama, 11, 2-4).

Māraṇa: The leaves of purified tin are smeared with a paste of purified haratāla and the juice (or a decoction) of palāśa. They are then subjected to heat by (laghu) puta, (This may have to be repeated three or four times), (RRS, 5, 161).

Comments:

Identification:

English	-	Stannum, Tin
Hindi	-	Rāng
Persian	-	Urziz
Marathi	-	Kathil
Arabic	-	Rasās
Gujarathi	-	Kalai

Māraṇa: When the purified tin is subjected to low heat, it becomes molten and (As_2S_3) haritāla, decomposes into As_2O_3 and tin is converted into tin oxide so the remaining substance will mainly consist of a greyish white powder of SnO_2 and traces of sulphur.

Śodhana: The first process somewhat resembles the poling process adopted in the refining of metals.

Varta-loham

Synonyms: Pancha-loham, Nīlikā, Vatta-lohakam, Sarva-loham, Bhartam.

Description: It is an amalgam of equal amounts of kāmsya (bell-metal), tāmra (copper), rīti (brass), loha (iron), and nāga (lead), (RRS, 5, 212).

Medicinal Action:

Rasa	: Pungent and sour
Guṇa	: Dry
Vīrya	: Hot (Cold according to DN)

It alleviates kapha and pitta, is appetizing, beneficial to the eyesight and skin, is a laxative and is useful in worms, (RRS, 3; DN, 6, 33-34; RN; 13, 34-35).

All types of articles, excepting sour things, if prepared in a vessel of this metal increase the appetite and are easily digestible, (RRS, 5, 213-214).

Note: When taken with vachā, triphala, saindhava, vidāṅga, pippalī, honey and ghee, it is an excellent rejuvenative and tonic, (CS, chikitsā, 1, 3, 46).

Vidā-lavaṇam

Synonyms: Kāla-lavaṇam, Kṛtrimakam, Dhūrtam, Supākyam, Āsuram, Khaṇḍa-lavaṇam, Drāvidakam.

Eng. - Artificial salt

Preparation: It can be prepared by two processes:

1. Eighty-two parts of sea-salt and one part each of haritaki (*Terminalia chebula*), āmalaki (*Phyllanthus emblica*) and swarjī (refined natron) — all powdered well are to be heated strongly in an earthen vessel, till they are fused together into one lump. This is called Viḍa.
2. Eight parts of sea-salt and one part of powdered āmalaki are to be mixed together, kept in an earthen vessel, and then subjected to a strong heat till the two products are fused together. The product when cooled is called vidā-lavaṇa, (RJN, Vol.III, page 287).

Medicinal Action:

Rasa	: Saline
Guṇa	: Sharp and dry
Vīrya	: Hot

It alleviates kapha and vāta, is appetizing, digestive, a laxative, and is useful in heart-diseases, abdominal colic, flatulence, indigestion, abdominal tumours, constipation, and urinary disorders, including diabetes, (DN, 2, 28-29; RN, 6, 36-37; CS; RJN, Vol.III, page 286).

Vimalam

Synonyms: Nirmalam, Svachha-dārukam.

Description: It is rounded, unctous, and endowed with angles and faces, (RRS, 2, 90).

Varieties: There are thrēe kinds of vimala — (1) Hema-vimala, which has the lustre of gold; (2) Tāra-vimala, which has the appearance of silver; and (3) Kāmsya-vimala, which resembles bell-metal. This last variety is to be employed in medicine, (RRS, 2, 90).

Medicinal Actions:

Rasa : Pungent and bitter

Virya : Hot

It alleviates vāta and pitta, is rejuvenative, aphrodisiac, and is useful in skin diseases, ulcers, fevers, anaemia, swellings, urinary disorders, anorexia, haemorrhoids, sprue, jaundice, tuberculosis and colic.

Śodhana:

1. Vimalam is (made into small pieces and) subjected to svedana (boiling) with the juice of decoction of vāsā (Adhatoda vasica), or juice of jambira or juice of mesha-śṅgi, (RRS, 2, 98-99).

Māraṇa: Purified vimala is to be (powdered well) mixed with (an equal quantity of) sulphur, rubbed with the juices of lakucha and lemon and subjected to heat by (gāja-) pūṭa ten times, (RRS, 2, 100).

Sattva-pātana:

1. The internal surface of a crucible is to be smeared with the paste prepared from a fine powder of vimala, an equal amount of borax, ashes of mesha-śṅgi and juice of lakucha. The crucible is then to be dried, and tightly sealed. It is then to be heated with six prasthas (about five seers) of charcoal. By this method, the essence (of vimala) resembling lead is obtained.

Mercury when combined with this essence becomes an excellent rejuvenative, (ibid, 101-102).

2. A fine powder of vimala is to be rubbed with kāṅkshi (alum), kāśisa, borax, vajra-kānta (wild sūraṇa), the kshāra of the mokshaka tree, and the juices of the banana plant and the juice (or decoction) of śigru. The paste is then to be enclosed within a blind crucible (mūka-mūsha) and subjected to heat. The essence that is obtained by this method resembles the chandrārka (the moon-rays, or a mixed metal of sixteen parts of silver and twelve parts of copper), (ibid, 103-104).

Comments:

Identification:

English - Iron pyrites

Occurrence: Pyrite, sulphide of iron, is a mineral of very wide distribution in many formations from the oldest crystalline rocks to the youngest sediments.

The occurrences on any considerable scale are those of the pyritous shale deposits lately found in the lower Son valley at Amjor, Bihar; in Chitradurga district of Karnataka and the pyritous coal and shale of the Assam coalfields.

Yaśadah

Synonyms: Ranga-saḍrśam, Rīti-hetuh, Kharpara-sattvah, Yaśodah (i.e. which helps the earning of fame, RJN).

Extraction:

1. Rub kharpara (calamine) with turmeric, triphala, resin, the salts, soot, borax and one-fourth its weight of bhallātaka (Semicarpus anacardium) and the acid juices. Smear the inside of a tubulated crucible (vṛntāka-mūsha) with the above mixture and dry it in the sun, and close

the mouth with another crucible inverted over it and apply heat. When the flame issuing from the molten calamine changes from blue to white, the crucible is caught hold of by a pair of tongs and its mouth held downwards and it is thrown on the ground, care being taken not to break its tubulure. Thus the essence of calamine is collected, (RRS, 2, 150-153).

This process of extraction of zinc has also been described in Rasārṇava (7, 37-38), Rasa-ratnākara, etc.

2. The powders of kharpara, lāksha (lac), jaggery, rājika, haritaki, haridra, sarjara and borax are boiled in cows' milk and later in ghee. The lump is then enclosed within a vṛntāka-mūsha and subjected to intense heat. The contents are then thrown on to a slab of rock. The product that is obtained resembles tin in appearance, (RRS, 2, 155-156) (Rasa-ratnākara).
3. A pot or cauldron full of water is placed within a koshtī (oven). A shallow earthen vessel perforated at the bottom is placed over the pot, and a mūsha (crucible) which contains the powders (mentioned in process 1) is placed in an inverted position on the shallow earthen vessel. The mūsha is then heated by dried logs of wood. The essence of kharpara is collected as it deposits within the pot (which is full of water), (RRS, 2, 157-158).
4. Rasaka, mixed with wool, lac, haritaki and borax, and roasted in a covered crucible yields a product that has the appearance of tin, (Rasārṇava).

Medicinal Action:

Rasa : Astringent and bitter
Virya : Cold

It alleviates kapha and pitta, improves eye-sight, and is useful in anaemia, urinary disorders and dyspnoea.

Note:

1. Yaśada-bhasma, if taken with a cold infusion of kharjūra and taṇḍulīya roots cures dysentery and disorders of pitta; with sugar and jeeraka, relieves diarrhoea and vomiting; with yāmāni and lavanga cures fever with chills; with the juice of betel-leaves relieves urinary disorders (and diabetes); and if used as collyrium with old ghee is beneficial to eye-sight, (RJN, Vol.III, page 100).

If improperly purified, it causes urinary disorders (including diabetes), indigestion, diseases of vāta, vomiting and vertigo, (ibid, page 101).

2. Equal quantities of yasada-bhasma and kānta-loha-bhasma weighing about eight gunjas are kept overnight in a vessel made of magnetic iron, along with a decoction of triphala. It is then to be administered with tila oil in madhumeha, swellings, tuberculosis, anaemia, abdominal tumours, rakta-gulma, menorrhagia, metrorrhagia, soma roga, yoni-roga, toxicosis, fever, dysmenorrhoea, cough, dyspnoea and hiccough. (RRS, 2, 160-165).

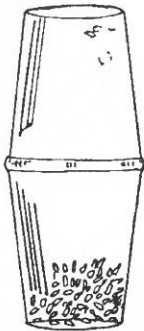
Toxic Effects:

Antidote: Balā and haritaki taken with sugar-candy for three days act as an effective antidote, (ibid).

Śodhana: Thin leaves of zinc are to be smelted and then immersed in milk. This process has to be repeated twenty-one times, (RJN, Vol. III, page 97).

Māraṇa:

1. Thin leaves of zinc are triturated in a mortar with one-fourth the quantity of sulphur and mercury (converted into kajjali) and the juice of kanyā (aloes) and later of lemon. It is then subjected to heat in a gaja-puṭa, (ibid, page 99).



2. Equal quantities of yaśada and purified haratāla are triturated with an iron-rod (or iron pestle) in an earthen vessel, (RRS, 2, 159).

Comments:

Identification:

English	- Zinc
Hindi	- Jasdā
Arabic	- Šabah
Kanada	- Sattu

Occurrence: Zinc does not occur free in nature; it occurs commonly as sulphide, mineral sphalerite or zinc-blende. Sphalerite is commonly associated with galena, the ore of lead.

Vāgbhaṭa was the first to record the description of zinc smelting accurately although Nagarjuna has touched upon zinc extraction in his Rasa-ratnakara as early as 9th century.

Māraṇa: After the gaja-puta process, the remaining residue consists mostly of zinc oxide (ZnO).

MŪSHĀ AND KOSHṬHĪ YANTRAS

Mūshā Yantra

Synonyms: Krounchikā, kumudī, karah-āṭikā, pāchanī, vahni-mitrā.

That which assists in the elimination of the poisonous effects of a drug is known as mūshā.

The basic materials needed for the preparation of the mūshā (crucibles) are mud and loha (iron or other metals). The mud which is to be used should be pale-yellow or reddish-yellow, thick, devoid of pebbles and capable of withstanding intense heat for a long time. In the absence of such mud, mud of the ant-hills or that used by potters may be employed. The other substances needed are burnt husks, hemp fibres or burnt charcoal powder and horse's dung. These have to be hammered well with the help of an iron rod, (RRS, 10, 1-8).

1. **Gāra-mūsha:** This crucible is prepared by mixing one part of black soil, six parts of clay, eight parts each of iron-rust, powdered charcoal and hemp fibres with buffalo's milk. This can withstand intense heat for about six hours.
2. **Gola-mūsha:** This is a rounded crucible without any opening, the substances meant to be heated being placed within it at the time of preparing it. Evaporation of substances can be prevented by making use of this mūsha.
3. **Gostanī-mūsha:** This crucible which is in the shape of a cow's udder, and is furnished with a cover with a handle is employed to liquefy and purify the essences (sattva).
4. **Mahā-mūsha:** This crucible resembles a big egg fruit (vṛntāka), being pointed at the bottom and wide above. This is used for extracting the essences of mica or for liquefying them.
5. **Malla-mūsha:** This is prepared by placing one basin over another one of the same size, and cementing the joint. This crucible is used to heat parpaṭī and other preparations.
6. **Maṇḍūka-mūsha:** This crucible is six angulars each in length, breadth and height and resembles a frog in shape. This is to be placed inside a pit and heated from above.

7. **Musala-mūsha:** This crucible has a flat base, is circular, and is eight angulas in height. It is used in preparing chakra-baddha mercury.
8. **Pakva-mūsha:** This resembles a pot usually made by potters, and is thick and well burnt. It is especially used in heating a group of medicines known as poṭalī.
9. **Rūpya-mūsha:** See Varṇa-mūsha
10. **Vajra-mūsha:** This crucible is prepared with three parts of mud, one part each of hemp fibres, horses's stool, burnt husks and powdered stone, and half a part of iron rust. It is employed for extracting essences (sattva) from metals.
11. **Vara-mūsha:** This crucible is prepared from one part each of hemp fibres, powdered charcoal and burnt husks, and four parts each of mud and clay. This crucible can withstand heat for about three hours.
12. **Varṇa-mūsha:** Red mud, devoid of pebbles is to be given bhāvanā with a decoction of drugs of the 'rakta-varga', and made into a crucible. This crucible is to be smeared, both internally and externally with alum and kāsīsa, and dried. This crucible is called a varṇa-mūsha as it is used to enhance the colour of the prepared medicines or drugs.
If the crucible is prepared from red mud, devoid of pebbles, which has been subjected to bhāvanā with the drugs of the 'sveta-varga', it is termed rūpya-mūsha.
13. **Viḍa-mūsha or Biḍa-mūsha:** This crucible is prepared from specially prescribed mud, and is plastered (both internally and externally) with the particular biḍa. It is used for preparation of medicines which render the body as strong as steel.
14. **Vṛntāka-mūsha:** This crucible is in the shape of a brinjal (Vṛntāka) and should have a strong funnel, twelve angulas in

length, of the shape of a dhattūra flower attached to it, as the flower is to its stalk. The crucible, which is eight angulas in length and has a small outlet is used for extracting the essences of soft metals.

15. **Yoga-mūsha:** A crucible prepared from burnt charcoal powder, burnt husks, mud, mud from ant-hills and a sufficient amount of biḍa, which is smeared over with a paste of the same biḍa is termed yoga-mūsha. Mercury which is heated in this mūsha acquires very useful qualities.

Koshthī Yantra

Koshthikas (or ovens) are made use of for extracting the essences from metals and for purifying them. They are of various sizes and shapes. The essences of a few substances are very easily extracted while those of a few other substances such as Vaikrānta are obtained with great difficulty.

1. **Angāra-koshthī:** A quadrangular oven which is one cubit (30 angulas) in height and 15 angulas in breadth is constructed. A hole, of one vitasti (12 angulas) is made at the lower end of one of the walls. Another hole, of one prādeśa (the distance between the thumb and the little finger) in diameter is to be made, one prādeśa below the upper edge of the walls. The holes are to be made strong by using brick powder and mud. The oven is filled with charcoal, etc., while the articles to be heated are placed in the oven through the upper hole. The fire is then kindled by means of two bellows. This oven is known as angāra-koshthī.
2. **Gāra-koshthī:** This oven is 12 angulas in depth and one prādeśa in diameter, with a belt, 4 angulas in height placed over it. A circular lid full of holes is placed upon it. The koshthī is filled

with charcoal, and heated by means of a vanka-nāla. This oven is called as a gāra-koshthi.

3. **Pātāla-koshthi**: A circular pit, one vitasti (12 angulas) each in diameter and height is dug into the ground. Another pit, 4 angulas each in diameter and height is dug inside this pit. An iron pipe is kept a slant over these pits, its upper end being kept a little higher than the upper level of the big pit. The inner pit is covered with an earthen circular lid having five holes. The bigger pit is filled with charcoal, the fire being blown by a blow-pipe. This oven is used to extract the essences from soft substances.
4. **Vanka-nāla**: An iron tube, one aratni (the length from elbow to tip of middle finger) is prepared from the mud used for constructing crucibles. Another tube, five angulas in length and bent downwards is attached to its lower end. This apparatus is termed vanka-nāla.

THE DIFFERENT VARGAS

1. **Amla-varga**: The 'sour group' consists of amla-vetasa, jambīra, nimbuka, bīja-pūra, chāngerī, chaṇakāmla, amlīka, kola, dāḍīma, pāthā, nāranga, etc. Of these drugs, amla-vetasa (or chaṇakāmla according to some authorities) is the best, and can be used as a substitute for any other sour drug.
2. **Amla-panchaka**: The 'five sour drugs' are kola, dāḍīma, vṛkshāmla, chullikā and chukrikā.
3. **Drāvaṇa-varga**: The 'drugs which facilitate liquefaction of metals, etc.' are jaggery, guggulu, gunjā, ghee, honey and borax.
4. **Dugdha-varga**: The 'group of milky drugs' consists of asvattha (peepul tree), udumbara (fig tree), arka, kumārī, vaṭa (banyan tree),

lodhra, dugdhikā, snuhī, the milk of a cow, buffalo, camel, mare, goat, donkey, female elephant and human milk.

5. **Kṛshṇa-varga**: The 'drugs which are blackening' are kadālī, kāravella, triphala, nilika, nala, clay, kāsisa and unripe mango fruit.
6. **Kshāra-panchaka**: The 'five alkalies' are yava-kshāra, suvarchika, and the ksharas of palāśa, mushkaka and tila-nāla.
7. **Kshāra-traya**: The 'triad of alkalies' consists of borax, sarjikā-kshāra and yava kshāra.
8. **Lavaṇāni**: 'The salts' are six in number. They are sāmudra (sea-salt), saindhava (rock-salt), viḍa (artificially prepared salt), sourvarc-hala (sonchal salt), romaka and chūlikā-lavaṇa (nava-sārah),
9. **Lohāni**: 'The metals' are gold, silver, copper, tin, lead and iron. The 'prepared metals' are bell-metal and brass.
10. **Madhura-traya**: The 'triad of sweet drugs' consists of ghee, guḍa (jaggery) and honey.
11. **Mṛdukara-varga**: The 'group of drugs which soften the metals' are mahishi-kanda, mesha-śṛngī (or the foetus and generative organs of buffalo according to some authors), indrayava, the seeds of dhava and the bones of rabbit.
12. **Mūtra-varga**: The 'urines' include the urine of elephants, camels, buffalos, horses, donkeys, goats and sheep.
13. **Pancha-mṛttikā**: 'The five kinds of earth' are powdered brick, gairika (red ochre), rock-salt, ash and mud of the anthill. RSS includes soot (grha-dhūma) instead of ash in pancha-mṛttika.
14. **Pīta-varga**: The 'group of drugs which bring about yellow colouration' are (flowers of) kīmsuka (palāśa), karṇikāra, haridra (turmeric) and dāru-haridra.

15. **Rakta-varga:** 'The group of drugs which engender red colour' includes kusumbha (flowers), khadira (bark), lākshā, manjishthā, rakta-chandana, akshīva, bandhu-jīva, svarṇa-mākshika and karpūra-gan-dhinī.
16. **Śodhanīya-gana:** 'The drugs which remove the impurities present in the essences (sattva), mercury and metals' are kācha (glass), borax, and śīprā (oyster).
17. **Śveta-varga:** 'The drugs used to whiten the metals, etc.' are tagara, kuṭaja, kunda, gunjā, jīvantikā, the white lotus and its stalk.
18. **Taila-varga:** 'The oils' used in rasa-śāstra are those extracted from kangu, tumbī, ghoshā, karīra, śrīphala (bilva or nārikela), kaṭu-vārtāka, siddhārta (mustard), somarāji (bākuchī), vibhītaka, ataśī, mahā-kālī (black mustard), nimba, tila, apāmārga, devadālī, dantī, tumburu, ankola, ummattu (dhattūra), bhallātaka and palāśa.
19. **Upa-visha-varga:** 'The secondary poisons' are lāngalī, visha-muṣṭī (kupīlu), karavīra, jayā' (bhanga), nīlikā (bhallātaka), kanaka (dhattūra) and arka.
20. **Vasā-varga:** The fat of the following animals is also used in rasa-śāstra: jackal, frog, tortoise, crab, iguana or porpoise, cow, pig, man, goat, camel, donkey, ram and buffalo.
21. **Viḍ-varga:** The metals are beaten into thin leaves which are then smeared with these substances, and subjected to heat by puṭa. They are quickly purified. The group consists of the dung of the parrot, blue jay, pigeon, vulture, hen and peacock.
22. **Visha-varga:** 'The poisons' include sṛṅgikā, kālakūṭa, vatsanābha (aconite), saktuka and pitta. These drugs are extensively employed, especially for the

solidification of mercury. If used however without due caution, they are dangerous enough to cause death. (RRS, 10).

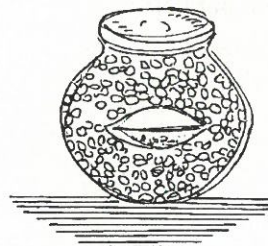
PUṬA

This refers to the process of subjecting a substance which is confined within two basins, to heat. The apparatus by which this is achieved is also termed as puṭa.

The drugs which are subjected to the required number of puṭa are transformed. They are reduced to ashes in such a way that they cannot be restored to their original state. They acquire excellent medicinal properties. The ashes float on water and enter into the lines on the fingers. The drugs are easily assimilated, are quick acting and powerful, (RRS, 10, 47-50).

There are about ten different kinds of puṭa.

1. **Bhāṇḍa-puṭa:** A big pot or vessel is half filled with dried husk (tushā). The drugs meant to be heated are confined within two crucibles, the joint being tightly sealed. The crucibles are then placed on the husks, and covered with more husk until the vessel is full. The husks are then set on fire. Heating a drug in this way is termed bhāṇḍa-puṭa, (RRS, 10, 60).



2. **Bhūdhara-puṭa:** The drugs meant to be heated are enclosed within two basins. These are placed in a pit full of cow-dung cakes in such a way that they are two angulas beneath the ground. The pit is then filled up with cow-dung cakes, which are set on fire. This process is called bhūdhara-puṭa, (ibid, 62).

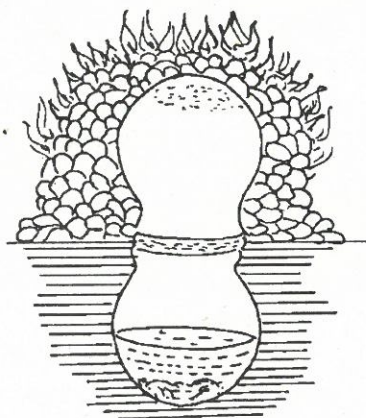
3. **Gaja-puta:** A squarish pit, thirty angulas in length, breadth and height, is filled with dried cow-dung cakes upto its neck. A crucible or two basins, containing the drugs is placed in it, and covered with half the number of cow-dung cakes used earlier. These cakes are then set on fire. This process is known as gaja-puta. (ibid, 53-54).
4. **Gobara-puta:** This is a process where husk or cow-dung which has been dried in the sun, and flattened by the hooves of cows in the cowpen is used as fuel, (ibid, 58-59).
5. **Kapota-puta:** This is a process where mercury, etc. is incinerated in a small pit, by being enclosed within two basins and subjected to the fire of eight dried cow-dung cakes, (ibid, 57).
6. **Kukkuṭa-puta:** A square pit, twelve angulas (one vitasti) in length, breadth and height, each, is filled upto its brim with cow-dung cakes. The basins enclosing the drugs are placed over it, and covered over with half the number of cakes used earlier. The cakes are then set on fire. This process is termed kukkuṭa-puta, (ibid, 56).
7. **Lāvaka-puta:** Two basins enclosing mild drugs are placed on a heap of husk or dried cow-dung cakes made into powder which is one pala in weight. These are set on fire. This process is known as lāvaka-puta, (ibid, 63).
8. **Mahā-puta:** A square pit, two cubits in length, breadth and height is dug in the ground, and filled with one thousand pieces of dried cow-dung cakes. The drugs meant to be heated are confined within two basins with the joint tightly sealed and placed on the cakes. Five hundred more cow-dung cakes are placed all around the basins, fully enclosing them.

They are then set on fire. This process of heating a substance is termed mahā-puta. (ibid, 51-52),

9. **Vāluka-puta:** A vessel is half-filled with sand, upon which are placed two basins enclosing the necessary drugs. The vessel is then filled upto its brim with more sand and covered. It is then placed in an oven and heated. This process is known as vāluka-puta. (ibid, 61).
10. **Vārāha-puta:** This is similar to gaja-puta with the only difference being that the pit is to be twenty-two angulas (one aratni) in length, breadth and height, (ibid, 55).

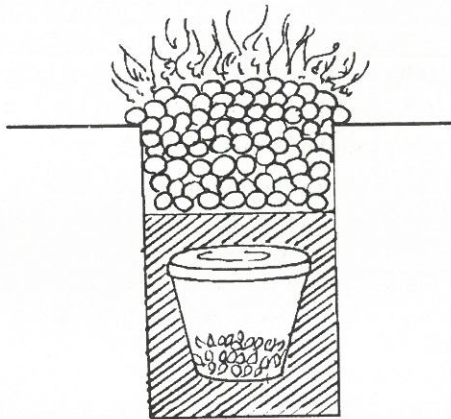
YANTRAS (APPARATUS)

1. **Adhah-pātanā yantra:** A paste of the articles which are to be sublimed is smeared on the inner surface of a vessel which is inverted over another vessel filled with water. The joint is closely cemented. The upper vessel is then heated by dried cow-dung cakes. This apparatus is used to cause downward sublimation of substances, (RRS, 9, 9).

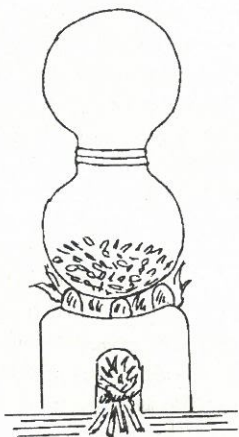


2. **Bhūdhara yantra:** A crucible containing mercury or any other substance is placed within a pit dug in the ground and enclosed below, on top and on all sides

with sand. A strong fire, made of dried cow-dung cakes is lit on the pit (which is covered by sand), (ibid, 44).



3. **Ḍamaru yantra:** One vessel is placed upside down on another vessel, the joint being cemented well. This apparatus is used for incineration of mercury (*rasa-bhasma-kṛti*), (ibid, 58).



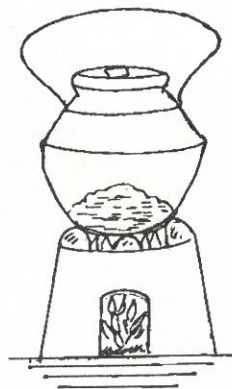
4. **Ḍeki yantra:** (used for sublimation and condensation).

One end of a bamboo reed is inserted into a small hole below the neck of a vessel. The other end is inserted within a *samputa* (closely cemented joint) formed by two vessels made of bell-metal containing water. All the joints are sealed tightly. Mercury after being rubbed with various

drugs is placed within the first vessel, which is heated. The mercury sublimates, passes through the reed and is collected in the other vessels. This continues as long as the apparatus remains warm, (ibid, 17-19).

5. **Dhūpa yantra** (used for amalgamation process).

An iron vessel eight angulas in height and breadth is taken, and a sort of a terrace is constructed, two angulas below the brim. Thin iron sticks are placed across this terrace, and thin gold leaves are placed over them.



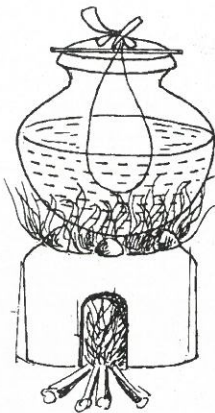
At the bottom of the pot are kept the *dhūma-dravyas*. The iron vessel is now to be covered upside down with another iron vessel, and the joint is tightly sealed. The iron vessel is then heated from below. The gold leaves turn blackish in colour and can easily be reduced to ashes (incinerated). Mercury can easily swallow the gold prepared in this manner. This apparatus is meant to process or transform the substances which are to be swallowed, (*jāraṇāt dravya-sādhane*).

The *dhūma-dravyas* used for 'processing gold' are sulphur, orpiment and realgar, made into a *kajjali*. Incinerated tin is used to 'process' silver, (ibid, 68-74).

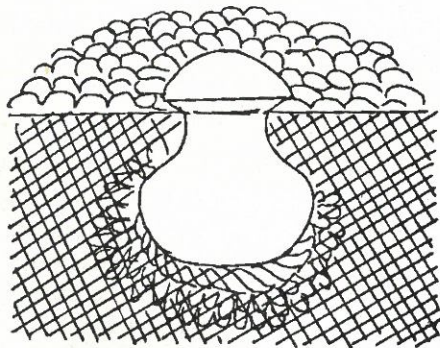
6. **Dīpikā yantra:** This is a *kacchapa yantra* with a difference. An earthen stand or platform is constructed and upon this is placed a lamp which is kept burning by vegetable oil and mercury. Mercury will thus sublimate, (ibid, 16).

7. **Dolā yantra:** A vessel is taken, which has two small holes perforated near its rim, one opposite the other. The vessel is half filled with the indicated liquid. A bundle

(poṭalī) of cloth containing the substances meant to be boiled is tied up firmly with a thread. It is then tied to a rod which passes through the two holes. The bundle will thus be kept suspended in the liquid. The vessel is then to be subjected to heat, (ibid, 3-4).



8. **Garbha yantra:** An earthen crucible is prepared which is four angulas in length and two or three angulas in breadth, and which has a rounded mouth. The crucible is then to be thickly plastered internally with a paste of twenty parts of powdered iron and one part of guggulu. This has to be done over and over again. It then has to be smeared over with the paste of mercury and other drugs, and plastered over by another paste of one part of rock-salt, half its quantity of mud and water. The crucible is then to be burnt in an underground pit for 24 to 72 hours by means of a mild fire made of husks. This apparatus is used for incineration of pastes of mercury and other substances, (ibid, 27-30).



9. **Ghaṭa yantra:** This is a vessel with a mouth which is four angulas wide and which contains four prasthas of water, (ibid, 51).

10. **Grasta yantra** (a double-walled insulation type of vessel).

Two crucibles, both of which are cylindrical, except at the bottom where they are flat, are placed one within the other. This apparatus is used for the solidification of mercury, (ibid, 66).

11. **Hamsapāka yantra** (sand bath)

A wide mouthed earthen vessel is to be filled with sand and upon this is placed another vessel which is filled with five kshāras, five kinds of urine, salts and biḍa. The vessel is heated by a slow fire. This apparatus is called hamsapāka yantra, (ibid, 34-35).

According to a few authorities, this apparatus is used for preparing various kinds of biḍa.

12. **Hingulākṛṣṭi-vidyādhara yantra** (used for condensation process).

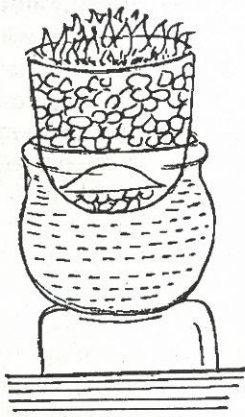
Two vessels of the same size are placed one above the other, and the joint is tightly cemented. The upper vessel is filled with water, and lower vessel is to be coated within with a paste of cinnabar and heated. This apparatus is termed vidyādhara yantra and is used in the extraction of mercury from cinnabar, (ibid, 56-57).

13. **Ishtikā yantra:** A pit, circular in shape is to be dug into the ground, and an earthen basin (śarāva) placed in it. A burnt brick with a hollow scooped out of it, is placed securely upon it. A circular iron plate, one angula in height is to encircle the hollow. The hollow is filled with mercury, and covered with a cloth, over which are kept some lumps of sulphur. The hollow is then covered with another basin, placed upside down. The joint is firmly cemented with earth. The apparatus is then subjected to heat by cow-dung cakes as indicated for kapota-puṭa. This apparatus is made use of for the jāraṇa (swallowing) of sulphur, (ibid, 52-55).

14. **Jāraṇa yantra:** Two crucibles, each twelve angulas in height are prepared, one of which has a small hole at the bottom. Sulphur is to be placed within this hole, while the other crucible is filled with mercury. The first crucible is placed within the other, after pouring finely filtered garlic juice into both of them, so that both sulphur and mercury are immersed in it. The crucibles are placed in a pot filled with water, which is to be covered by another pot, the joint being securely cemented with mud and cloth. The apparatus is then to be heated strongly by fire, as prescribed in kapota-puta. Heating is to be continued for three days (72 hours). Mercury is to be taken out only after the apparatus has completely cooled down. Sulphur is thus swallowed by mercury, (ibid, 20-26).

15. **Kacchapa yantra** (Hot water bath),

A big earthen vessel is to be kept afloat on a vessel which is full of water. A crucible containing mercury and bida is placed on it, and covered with a thin iron plate, the joint being tightly cemented. The apparatus is heated



by heaping burning coal made from the wood of khadira on the big earthen vessel, on all sides of the crucible. The mercury thus produced can be easily exhausted or swallowed after boiling and rubbing it with other drugs. All essences of metals can be readily liquefied by use of this mercury, by means of adequate heat, (ibid, 13-15).

16. **Kanduka yantra:** A big vessel is filled with water and its mouth is closed tightly

with a cloth, over which is placed the substance meant to be boiled. The mouth of the vessel is then covered with a lid or a basin. The vessel is then subjected to heat. This apparatus is termed kanduka yantra. Some scholars refer to this as Svedanī yantra.

According to other texts, the vessel is to be filled with water over which straw is allowed to float. The substance to be boiled is placed on the straw, and the mouth of the vessel is covered with a lid. The vessel is then subjected to heat, (ibid, 75-77).

17. **Khalla yantra:** A khalla or mortar is to be prepared of stone which is blue or blackish, smooth, thick and heavy. It should be 16 angulas in height, nine angulas in breadth and 24 angulas in length. The pestle (gharshaṇī) should be twelve angulas in length.

The mortar may also be twenty angulas in length and ten angulas in height.

There are three kinds of mortars, ardhachandra khalla (crescent shaped mortar), vartula khalla (circular mortar) and tapta khalla (hot mortar).

The first two mortars should be extremely smooth, and strong so as not to wear away rapidly.

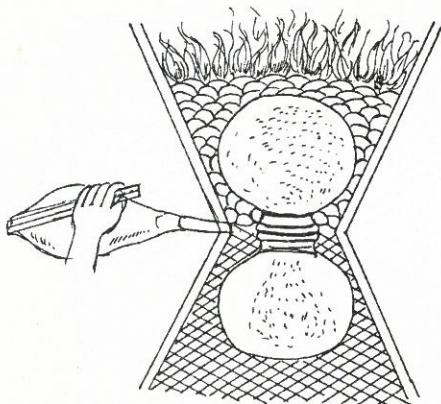


Ardhachandra khalla (crescent shaped mortar): This is to be ten angulas in height, sixteen angulas in breadth at the upper part, seven angulas in breadth at the bottom, and two angulas in thickness. It should be very smooth, with a shape resembling that of the half-moon. The pestle should be twelve angulas long.

Vartula khalla (circular mortar): This mortar made of extremely smooth stone is twelve angulas in diameter at the upper part, and four angulas in diameter at the bottom. The internal surface at the bottom should be made very smooth. The pestle should be flat in the lower extremity, and capable of being handled easily. This mortar is very comfortable to use.

Tapta khalla (hot mortar): A mortar is to be made of kanta loha, which is nine angulas at the top and six angulas at the bottom, and has a pestle which is eight angulas long. An oven (chulli) of the same shape as the mortar is constructed and filled with burning charcoal. The mortar is placed on the oven, which is heated by means of bellows. Mercury, previously made into a paste with ksharas and salts can be easily liquefied by being rubbed in this mortar, (RRS, 9, 78-90).

18. **Koshthi yantra:** This is an oven which is one cubit (24 angulas or 18 inches) long



and 16 angulas wide. This is filled with hard charcoal, in the middle of which is placed a crucible containing substances whose essence is to be extracted. The oven is then heated, the fire being fanned by the air sent through the internal passage by bellows, (Atri Samhita; RRS, 9, 46).

19. **Lavana yantra** (Hot salt bath)

- This is a vālukā yantra with the difference that powdered salt is used instead of sand, (RRS, 9, 40).
- A copper bowl is smeared internally with a paste of mercury. It is then kept (inverted) within a bigger vessel, and the joint is tightly sealed with mud and salt. The vessel is then filled with salt and heated as in a vālukā yantra, (ibid, 41-42).

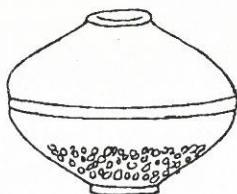
20. **Nābhi yantra:** An earthen basin is prepared with an enclosure or circular wall, about one angula in height in the middle of it. This enclosure is filled with mercury and sulphur, and then covered by a crucible which has the shape of the teat of a cow. The joint is tightly cemented with mud and water. The basin is then filled with water and placed on an oven. This apparatus is used for the purpose of exhausting or swallowing (jāraṇa) mercury and sulphur without any emission of smoke, (ibid, 59-61).

According to RJN, instead of using water and mud to cement the joint, the paste of finely powdered oxidised iron, molasses and lime rubbed together with a well condensed decoction of bark of babbūla, serves as a good water proof cement, (RJN, Vol.I, page 272).

21. **Nalikā yantra:** An iron pipe or tube in which mercury is confined is kept

buried in salt in a lavaṇa yantra. This is heated as described earlier (see lavaṇa yantra), (ibid, 43).

22. **Pālikā yantra:** This is a rounded iron cup or vessel equipped with a spoon with its upper extremity bent a little. It is generally used in drawing out oil, and in the 'swallowing' of sulphur, (ibid, 50).
23. **Pātanā yantra:** A vessel with a diameter of eight angulas at the top, ten angulas at the middle and with a height of four angulas is placed upon the mouth of another vessel which has a diameter of sixteen angulas. The lower vessel may contain mercury (or any other substance) and the upper vessel, water. The joint is then cemented with a paste of buffalo's milk, lime, oxidised iron and phāṇita (molasses). This apparatus is then to be placed over an oven and heated. (The mercury will be deposited on the convex bottom of the upper vessel). This apparatus is called pātanā yantra, (ibid, 6-8).
24. **Putā yantra:** An earthen crucible or basin is to contain mercury which has been rubbed with other drugs, and is covered by another earthen basin placed upside down. The joint is tightly cemented. The apparatus is then to be placed on a oven and filled with cow-dung cakes, etc. and heated for six hours. This apparatus is known as putā yantra.

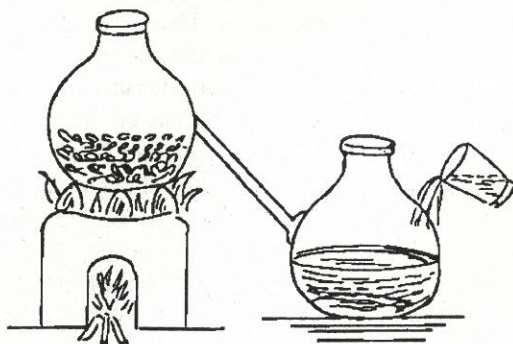


25. **Somānala yantra:** This is the name given to any apparatus where mercury or any other substance is exposed to heat above and the coolness of water below. This is

especially useful in the jāraṇa (swallowing) of mica, etc. (ibid, 29).

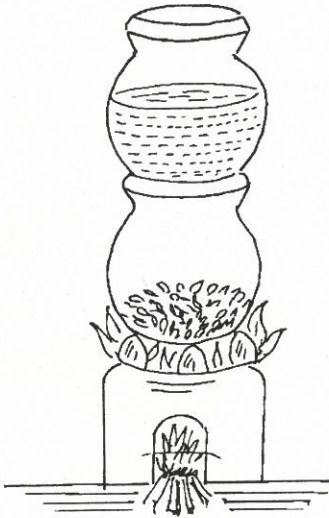


26. **Sthālī yantra:** A vessel containing copper, etc. is covered by a basin and the joint is well cemented. It is then kept on a oven and heated. This apparatus is named sthālī yantra. (ibid, 67).
27. **Svedanī yantra** (used for steam heating),
A vessel is filled with water, and its mouth is covered with a cloth over which are placed the substances meant to be boiled. The vessel is then to be covered with a basin so as to cover the substances, and is heated from beneath. This apparatus is termed svedanī yantra, (ibid, 5).
28. **Tiryak-pātanā yantra** (used for distillation),



The apparatus consists of a big vessel with a long, bent tube, the other end of which is to be inserted into the body of another vessel containing water. Mercury, etc. is placed within the first vessel which is strongly heated from beneath. The other vessel is to be continuously cooled by pouring cold water over it. This apparatus is known as *tiryak-pātanā yantra*, (ibid, 10-12).

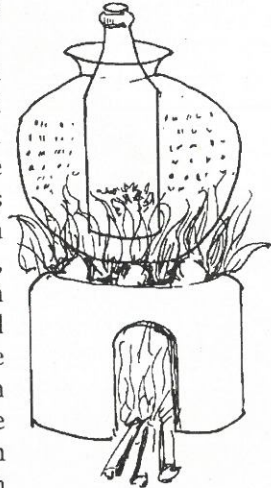
29. **Urdhva-pātanā yantra** - See *Pātanā yantra*,



30. **Valabhi yantra or khala-charī yantra**: This apparatus consists of two iron vessels, one smaller than the other, each being furnished with bases. The bigger vessel is filled with *kānjī*, while in the smaller one is placed swooned (*mūrcchita*) mercury. The latter is placed over the former, and the joint cemented. The lower vessel is then to be heated for six hours. This apparatus is used to revive and increase the potency of mercury. Better results are obtained if the vessels are prepared from *kānta loha*, (ibid, 47-49).

31. **Vālukā yantra** (sand bath)

A glass bottle is to be filled two-thirds with mercury and tightly stoppered. It is to be plastered on its outer surface with mud and cloth, one angula in thickness, and dried. This bottle is then placed in a big vessel, one vitasti in depth and filled with sand. More sand has to be added until the bottle is covered with sand upto its neck. The mouth of the vessel is then covered with an earthen basin, and the joint securely sealed; the vessel is then kept on an oven and heated. Heating has to be continued until the basin is so hot that it will reduce to ashes a piece of dried grass placed upon it. This apparatus is called a *vālukā yantra*. (ibid, 36-39).



32. **Vidyādhara yantra**: This is the same as a *pātanā yantra* with the only difference that the oven should have four openings, (ibid, 27).

Technical Terms

1. **Abhisheka**: The process in which water is sprinkled for eight seconds (*aṣṭa-nimeshakam*) upon a metal (*loha*) which is liquefied and is still being subjected to heat, (RRS, 8, 53).
2. **Anala-dalam**: The process by which a substance (a metal) acquires a yellowish colour after it is acted upon by *pārada-bhasma* or solidified mercury or any metals, (ibid, 16).

3. **Anu-varnah or Su-varnakah:** The procedure in which a substance is added to another substance in a quantity greater than what is prescribed, (ibid, 47).
4. **Āvāpah, or Prativāpah or Ācchādanam:** The process in which a substance is added to a metal or any other substance which is liquefied by heat, (ibid, 52).
5. **Bahīś-sīta:** The condition where any heated substance is cooled after removing it from the fire-place (or oven) (ibid, 58).
6. **Bhanjanī:** (concentration process).
The process by which a liquid or any other substance is reduced in quantity by subjecting it to heat, (ibid, 48).
7. **Bhasmam:** The bhasma is of excellent quality when:
 - a) It floats on water when sprinkled on it.
 - b) It enters into the lines of the fingers when rubbed between the thumb and first-finger.
 - c) It does not revert to its original condition even when mixed with jaggery, gunjā, borax, honey and ghee, and heated.
 - d) It does not combine with silver even when heated with it.

That bhasma is extraordinarily powerful which does not sink in water even when rice particles are placed on it, (ibid, 26-30).
8. **Bījam or Uttaraṇam:** A metal or any other substance, when subjected to repeated nirvāpaṇa (heating and immersing in a liquid) acquires various colours, becomes soft and its properties are transformed - such a metal (or substance) is termed bījam, (ibid, 31).
9. **Bījāvartah:** When a metal or any other substance is being heated, the fire emits flames which are of the colour of the same substance being heated, and the process of liquefaction commences. Such a condition is known as bījāvarta, (ibid, 57).
10. **Chandra-dalam:** The process by which a substance (a metal) acquires a white colour after it is acted upon by pāraḍa bhasma, or solidified mercury or any metal, (ibid, 16).
11. **Chandrārkaṁ:** An alloy (mīśra-dhātu) of sixteen parts of silver and twelve parts of copper is given the name chandrārka, (ibid, 23).
12. **Chullikā** (discolouration process):
The condition wherein the colouring named 'patangi' disappears after a certain number of days, (ibid, 50).
13. **Dhālanam:** The process wherein any liquefied metal (or substance) is introduced into a liquid is termed dhālana.
14. **Dvandvānam:** The process by which two substances are combined to form a new substance, either through subjecting them to heat or by triturating them, (ibid, 46).
15. **Ghoshākṛṣṭa-tāmram:** Bell-metal (kāmsya) mixed with a certain amount of orpiment is subjected to heat by a blow-pipe. The tin present in it will be eliminated, leaving behind copper, (ibid, 38).
16. **Hema-raktī:** Gold will attain a blood-red colour when acted upon by vara-loha. This gold is termed hema-raktī, (ibid, 13).
17. **Hingulākṛṣṭa-rasah:** Hingula (cinnabar) is rubbed with ginger-juice and made into a paste. This is placed in a vidyā-dhara yantra and subjected to heat. The mercury that is obtained is termed hingulākṛṣṭa-rasa, (ibid, 37).
18. **Jāraṇa:** The process by which metals like gold etc. are 'swallowed' by mercury.
19. **Kajjaī** - See Kajjali
20. **Navanīta-piṣṭī:** One and a half māsha of sulphur is taken along with twelve times its weight (one and a half tola) of

- mercury and rubbed vigorously in a mortar, which is kept exposed to the sharp sun's rays. A paste resembling fresh butter is obtained, which is termed *navanīta-piṣṭī*, (ibid, 7).
21. **Nirvāpah or Snapanam:** The process of immersing a heated substance in water, (quenching) (ibid, 54).
 22. **Nirvāpaṇam or Nirvāhaṇam:** The process of combining two metals by heating them with the aid of a blow-pipe (*vanka-nāla*), (ibid, 24).
 23. **Pātana-piṣṭī:** The paste, used much in mercurial processes, obtained by rubbing mercury with one-fourth its weight of gold is known as *pātana-piṣṭī*, (ibid, 9).
 24. **Pātangī:** Metals or silver sometimes attain the appearance of gold when they are rubbed with the paste of some drugs. This is called *pātangī*, (ibid, 49).
 25. **Pātangī-rāgaḥ:** The golden coating which covers the metals (which are acted upon by some drugs) can be removed after a long time by heating the metals strongly. The coating which can be thus separated is termed *pātangī-rāgaḥ*, (ibid, 51).
 25. **Pinjarī:** When one metal is combined with another by heating them strongly, and when this molten metal is immersed in a liquid, it sometimes attains a pale-yellow colour, which is called *pinjarī*, (ibid, 22).
 26. **Piṣṭī:** The paste-like substance obtained by rubbing or triturating mercury, sulphur and milk in a mortar is termed *piṣṭī*, (ibid, 8).
 27. **Pratīvāpah:** (See *Āvāpa*)
 28. **Rasa-pankah:** The clay-like substance, obtained by rubbing mercury with any metal, or sulphur, or other substances, with the addition of a liquid is termed *rasa-pankah*, (ibid, 6).
 29. **Sattvam:** The essence which is obtained from a substance by rubbing it with drugs of the *kṣhāra-varga* (alkalies), *amla-varga* (sour drugs) and *drāvaka-varga*, and heating it in a *sattva-pātana koṣṭhī*, is known as *sattva*, (ibid, 34).
 30. **Śuddhāvartah:** When a metal or any other substance is being heated strongly, the fire emits white flames. This is the best time to obtain the essence. Such a condition is called *śuddhāvarta*, (ibid, 56).
 31. **Svānga-śītam (annealing):** The condition wherein the heated substance is allowed to cool down in the oven itself, (ibid, 58).
 32. **Svarṇa-kṛṣṭī:** When gold which has been incinerated with the help of mercury, sulphur, etc. is restored to its former condition by various means, and when this is done several times, it is called *svaṇa kṛṣṭī*, (ibid, 10).
 33. **Śulba-nāgam:** Both copper and lead are incinerated separately, and restored to their original condition seven times. Two *palas* each of these two metals are mixed with *nīlānjana* (galena), and the three are together incinerated and revived, seven times. The product that is at last obtained is termed *Śulba-nāga*.
Mercury which is purified by this substance is made into a lump, which when kept in the mouth, relieves all the varieties of urinary disorders. If it is kept in the mouth for an year, while at the same time on a strict diet, it retards ageing, removes wrinkles and greying of hair, bestows excellent health and improves eye-sight, (ibid, 18-21).
 34. **Tadanam:** The process of eliminating any one metal (or substance) from a combination of metals by subjecting them to heat by a blow-pipe, (ibid, 32).
 35. **Tara-kṛṣṭī:** When silver which has been incinerated with the help of mercury,

sulphur, etc. is restored to its former condition by various means, and when this is done several times, it is known as tāra-krashti, (ibid, 40).

36. **Utthapanam:** The process of reviving or restoring an incinerated substance to its original condition, (ibid, 40).
37. **Vara-loham:** Equal quantities of copper and tīkshṇa-loha are heated strongly, liquefied, and then poured carefully into the juice of lakucha to which is added a certain amount of sulphur. The product that is obtained after repeating this process several times is termed vara-loha (excellent metal) (ibid, 12).
38. **Vara-nagam:** An alloy which is black, soft, and easily liquefied is got by heating tīkshṇa-loha and nīlānjana strongly and for a long time. This is termed vara-nāga, (ibid, 39).

Bhāvanā

1. When the medicinal substance is immersed in a specific quantity of any chosen liquid (svarasa or kvātha), and allowed to remain there until the substance is completely dry, it is called bhāvanā (steeping, saturation), (SaS, II, 6, 6).
2. When the medicinal substance is made to become "one with the chosen liquid", or made moist with the liquid (and then allowed to dry), it is called bhāvanā. (Todarānanda).
3. When the medicinal substance, which has been reduced to a powder, is mixed with the specific quantity of a chosen liquid (svarasa or kvātha) and then exposed to the sun during day time (for seven days) and to the air during nights, until it becomes completely dry, the procedure is known as bhāvanā.

The substance used for bhāvanā is mixed with a quantity of water eight times more than the quantity of the substance, and is boiled until one eighth part of the water remains; (and then this is used for giving bhāvanā), (RSS, pariśiṣṭa).

MATERIA MEDICA OF ANIMAL PRODUCTS

Agni-jārah

English - Ambergris, Ambra Grisea

Hindi - Ambar,

Persian - Mushk-amper,

Occurrence: It is considered to be the placenta of the Agni-nakra, a sea animal, which is dried on exposure to sun and is washed ashore. It is thus commonly found on the sea shores, (RRS, 3, 135; AP, 2, 341).

Medicinal Action:

Rasa : Alkaline

It alleviates all the doshas, is appetizing and is useful in Dhanur-Vāta and other diseases of vāta (RRS, 3, 136).

Note: It is purified by its contact with the alkaline (and salty) sea-water, and therefore does not need any purification (ibid).

Non-medicinal uses: It is used in the jāraṇa of mercury and enhances its action (ibid).

Ajah

Synonyms: Cchāgah, Barkarī, Bastah, Stubhā, Cchelikā, Lamba-karṇah, Payasvalah, Medhyā, Bukadakah.

English - Goat

Hindi - Bakri

Type : Grāmya (SS)

The Milk:

Rasa : Astringent and sweet
 Guṇa : Light
 Virya : Cold

It is constipative, appetizing, and is useful in tuberculosis, diarrhoea, dyspnoea, cough, fever, haemorrhages and debility. It is beneficial in almost all diseases, as the goat is of slight build, partakes of pungent and bitter substances, does not drink much water and is always active. (CS, sūtra, 25, 40; SS, sūtra, 45, 51; DN, 6, 137-138; BP, 6, 16).

The Curd:

Rasa : Astringent and sweet
 Guṇa : Light
 Virya : Hot
 Vipāka : Sweet

It alleviates all the doshas, especially kapha and pitta, is appetizing, digestive, constipative and is useful in tuberculosis, cough, dyspnoea, haemorrhoids, emaciation and eye-diseases. (SS, sūtra, 45, 68; DN, 6, 191; RN, 15, 247; BP, 6, 15, 12).

The Ghee:

Guṇa : Light

It alleviates kapha, is appetizing, strength-giving, beneficial to eye-sight and is useful in cough, dyspnoea and tuberculosis, (SS, sūtra, 45, 93; RN, 15, 206).

The Flesh:

Rasa : Sweet
 Guṇa : Light and unctous
 Virya : Not excessively cold
 Vipāka : Sweet

It alleviates all three doshas, but especially vāta and pitta, is strength-giving, nourishing and is useful in catarrh. The flesh of the young goat

is beneficial in dry cough, tuberculosis, catarrh, fever and is very easy to digest, (DN, 6, 385; RN, 17, 405; BP, 6, 11, 73-77).

The Urine:

Rasa : Astringent, pungent and sweet
 Anu-rasa : Salty
 Guna. : Sharp, light and coarse
 Virya : Hot

It aggravates pitta, alleviates kapha and vata, and is useful in worms, swellings, ascites, flatulence, colic, anaemia, abdominal tumours, anorexia, poisoning, skin diseases, haemorrhoids and leucoderma, (CS, sutra, 1, 100; AHr, sutra, 5, 83).

Note:

1. Smelling the urine relieves hiccoughs (SS, uttara, 50, 22).
2. The fat is useful in Mūdhā-vāta, (SS, chikitsa, 11, 27).
3. The dung is beneficial in dyspnoea and hiccoughs, (AS, sūtra, 6, 145).
4. The meat-juice is very useful in tuberculosis, (CS, chikitsa, 8, 67).
5. The skin and hair are used for fumigation, (SS, uttara, 60, 38).
6. The kshara of the dung is useful in constipation, visūchika and vātāshthila, (CS, chikitsa, 13, 162).
7. The fat is used as collyrium in eye-diseases, (AS, uttara, 19).
8. The liver and spleen are useful in night-blindness, eye-diseases and colic, when administered internally (SS, uttara, 17, 26). They are also used as collyrium in night-blindness, (ibid).

References: SS, uttara, 41, 56; CS, chikitsā, 5, 133; 8, 11, 50, 116; 11, 27, 83; 18, 44; 19, 74, 84; 25, 40; 28, 53, 133, 30, 80, 101; kalpa, 1, 28; siddhi, 6, 82; 10, 41).

Ajāgarah

English - A non-poisons snake

Type : Bileśaya (SS).

A non-poisonous snake (SS, kalpa, 4, 38).

Medicinal Action:

The flesh is beneficial in haemorrhoids.

Ākhuḥ

Synonyms: Mūshakah, Kha-nakah, Pingah, Nakhī, Undurakah, Bilakarī, Dhānyārī, Bahu-prajah.

English - Mouse

Type : Bileśaya (SS);
Prasaha (CS).

It has poisonous fangs (CS).

Varieties: SS describes eighteen varieties of mūshaka (kalpa, 7). According to Ḍalhaṇa, Ākhu is a variety of mūshika which dwells on trees (NIS on SS, uttara, 41, 36).

Medicinal Action:

Rasa : Sweet

Guṇa : Unctous and Vyavāyī. The flesh is aphrodisiac.

Note :

1. The eggs are used in preparing a medicated ghee which is aphrodisiac, (SS, chikitsā, 26, 31).
2. The flesh is beneficial in tuberculosis, (SS, uttara, 41, 36).
3. A medicated oil prepared from the flesh is used both internally and externally in rectal prolapse, (SS, chikitsā, 20, 62).

4. A medicated ghee prepared from the flesh is beneficial in headaches, etc., (CS, chikitsā 26, 175).

References: DN, 6; RN, 19.

Ambu-chāri Varga

This is one of the groups of animals mentioned in CS and consists of animals which float on water. The animals included in this group are:

1. Ambu-kukkuṭi (moor hen)
2. Ārā (avocet)
3. Baka (heron)
4. Balākā (Crane)
5. Chakra-vaka (ruddy sheldrake)
6. Hamsa (swan)
7. Kādamba (grey-leg goose)
8. Kāka-tuṇḍaka (river tern)
9. Kāma-kātī (tropic bird)
10. Kāraṇḍava (white-fronted goose)
11. Kesarin (curlew)
12. Krauncha (demoiselle crane)
13. Madgu (small cormorant)
14. Maṇi-tuṇḍaka (oyster-catcher)
15. Megharāva (Trumpeteer swan)
16. Mṛṇāla-kaṇṭha (snake-bird)
17. Nandī-mukhī (flamingo)
18. Pākā-hamsa (mute swan)
19. Plava (pelican)
20. Pushkarāvya (lily trotter)
21. Puṇḍarīkāksha (white-eyed Pochard)
22. Rakta-śīrshaka (purple heron)
23. Rohiṇī (common teal)
24. Saha-chārin (petrel)
25. Śārāra (skimmer bird)
26. Sārāsa (indian crane)
27. Sumukhā (mandarin duck)
28. Utkrosha (mallard)
29. Vātī. (little grebe)

Medicinal Action:

Rasa	: Sweet
Guṇa.	: Unctous and heavy
Vīrya	: Hot

The flesh of the animals of this group alleviates Vāta, aggravates Kapha and Pitta, is strengthening, nourishing, aphrodisiac, and is beneficial to persons who have strong digestive powers and exercise daily.

References: CS, sūtra, 27, 41-44; 56-58, (See Ānūpa-Varga).

Ambu-kukkuṭikah

English	- Moor hen.
Marathi	- Pāṇ-kobaḍi
Vernacular	- Buḍiyāk (Dalhaṇa)

Type	: Plava (SS); Ambuchāri (CS).
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Description: It is described as being black in colour (NiS on SS, sūtra, 46, 105).

Angāra-chūḍvakah

English	- Black bulbul
Type	: Pratuda (CS).

Aranya-gavayah

Synonyms: Vanya-gavayah

English	- Wild cow
Type	: Kūlachara (SS).

Ānūpa Varga

The group of aquatic animals has been divided into five sub-groups in SS. They are:

I. **Kūlachara** — Animals which roam about and hunt for food along the river banks. This group consists of :

1. Aranya-gavaya (wild cow)
2. Chamara (yak)
3. Gaja (elephant)
4. Gavaya (gayal ox)
5. Gokarṇa (cow-eared deer)
6. Kāla-pucchaka (black-tailed deer)
7. Khangī
8. Mahisha (buffalo)
9. Nyanga (hog deer)
10. Ondra (otter)
11. Rohita (red deer)
12. Ruru
13. Śrṃara (Indian wild boar)
14. Varāha (boar)

Medicinal Action: The flesh of these animals possesses some medicinal properties in general.

Rasa	: Sweet
Guṇa	: Unctous
Vīrya	: Cold
Vipāka	: Sweet

It alleviates vāta and pitta, aggravates kapha, is a diuretic, strengthening and an aphrodisiac.

II. **Plava** — Animals which float on water. These move about in flocks (sanghāta-chāriṇah):

1. Ambu-kukkuṭika (moor hen)
2. Baka (heron)
3. Balāka (demoiselle crane)
4. Chakravāka (ruddy sheldrake)
5. Hamsa (swan)
6. Jīvanjīvaka (Chukar)
7. Kādamba (grey leg goose)
8. Kāchāksha (Indian reef heron)
9. Kāraṇḍava (coot)
10. Konālaka (a species of aquatic quail)
11. Krauncha (pond heron)

12. Kurara (osprey)
13. Madgu (small cormorant)
14. Mallikāksha (bar headed goose)
15. Megharava (a species of water fowl)
16. Nandīmukha (flamingo)
17. Plava (pelican)
18. Puṇḍarīka (white eyed duck)
19. Pushkara-śāyika (common crane)
20. Śārārimukha
21. Sārasa (sarus crane)
22. Śuklāksha (white eyed pochard)
23. Śveta-charaṇa
24. Utkośa (fishing eagle)

Medicinal Action:

Rasa	: Sweet
Guṇa	: Unctous
Vīrya	: Cold
Vipāka	: Sweet

The meat alleviates vāta, is a laxative, diuretic, an aphrodisiac and relieves haemorrhages.

III. **Kośastha** — Animals which are enclosed by valves:

1. Bhallūka (cowrie)
2. Śambūka (common snail)
3. Śankha (conch)
4. Śankhaṇa (a species of molluses)
5. Śukti (Pearl-mussel), etc.

Medicinal Action:

Rasa	: Sweet
Guṇa	: Unctous
Vīrya	: Cold
Vipāka	: Sweet

The flesh alleviates vāta and pitta, aggravates kapha, and is stool-forming.

IV. **Pādīna** — Animals which possess foot-like appendages:

1. Karkātaka (common crab)

2. Kṛshṇa-karkātaka (black crab)
3. Kumbhīra (true gavia)
4. Kūrma (tortoise)
5. Śīṣa-mara (dolphin)

The flesh of these animals has medicinal properties similar to that of the Kośastha group.

V. **Matsya** — Fish have been further classified into fresh-water fish and marine fish.

A. **Nādeya-matsya**. (fresh water fish)

1. Gomatsya (huge sheat-fish)
2. Kṛshṇa-matsya
3. Murala
4. Pāṭalā (tan coloured catfish)
5. Pāṭhīna (boal)
6. Rājīva (mullet)
7. Rohita (red carp)
8. Sahasra-damshṭra (bachha cat fish)
9. Vāgunjāra
10. Varmī

Medicinal Action:

Rasa	: Sweet
Guṇa	: Heavy and unctous
Vīrya	: Hot

The flesh alleviates vāta, is an aphrodisiac, constipative, and aggravates haemorrhages (rakta-pitta).

B) **Sāmudra-matsya** (marine fish)

1. Chandraka
2. Gargaraka
3. Kuliśa (hatchet fish)
4. Mahāmīna (large marine fish)
5. Makara (crocodile)
6. Nandi-vāralaka
7. Nirālaka
8. Pāka-matsya (sucking fish)
9. Rājīva (mullet)
10. Timi (whale)
11. Timingala (whale shark)

Medicinal Action:

Rasa : Sweet
 Guṇa : Heavy and unctous
 Vīrya : Hot

The flesh alleviates vāta, aggravates kapha, slightly aggravates pitta, is an aphrodisiac and promotes bulky stools.

Marine-fish are extremely strengthening as they subsist mostly on flesh, while fresh-water fish are more nourishing, (SS, sūtra, 46).

CS includes the following animals under the group which dwells in wet, damp areas:

1. Chamara (yak)
2. Gaja (elephant)
3. Gavaya (goyal ox cat fish)
4. Khanga (rhinoceros)
5. Mahisha (buffalo)
6. Nyanku (hog deer)
7. Ruru (swamp deer)
8. Śrmara (Indian wild boar)
9. Varāha (pig)

Medicinal Action (of the Flesh):

Rasa : Sweet
 Guṇa : Heavy and unctous
 Vīrya : Hot

The flesh of animals of this group alleviates vāta, aggravates pitta, is strengthening, an aphrodisiac, and nourishing, (CS, sūtra, 27).

Aśvah

Synonyms: Ghoṭakah, Turagah, Vājī, Harih, Turangamah, Śāli-hotrah, Vāhah, Mudga-bhojī, Vītiḥ, Saindhavah, Saptih, Dhārāṭah, Gandharvah, Bāḍavam

English - Horse
Hindi - Ghodā,

Type : Grāmya (SS),
 Prasaha (CS).

The Milk:

Rasa : Sour and salty

It alleviates vāta, is an aphrodisiac, strength-giving, appetizing, enhances lustre and relieves dyspnoea, (DN, 6).

The Curd:

Rasa : Astringent and sweet
 Guṇa : Dry
 Vīrya : Hot

It aggravates vāta and kapha, is appetizing and is useful in syncope and urinary disorders (DN, 6; RN, 19).

The Ghee:

Rasa : Astringent, sweet and pungent
 Guṇa : Heavy (light according to AMD)

It slightly aggravates vāta, is appetizing, constipative, reduces the frequency of urination and is useful in syncope, (DN, 6; AMD).

The Meat:

Rasa : Salty and sweet
 Guṇa : Unctous
 Vīrya : Hot
 Vipāka : Pungent

It alleviates vāta, is strengthening, nourishing, appetizing, and is beneficial to eye-sight. (DN, 5; RN, 19).

The Urine:

Rasa : Bitter and pungent
 Guṇa : Sharp
 Vīrya : Hot

It alleviates kapha and vāta, is appetizing, and is useful in insanity, worms and certain skin diseases, (SS, sūtra, 45, 225; DN, 6).

Note:

1. The teeth are included in a prescription which is recommended in skin-diseases, (CS, chikitsā 7, 160).
2. The bile is useful in antidoting poison which is localised in the head, (CS, chikitsā, 23, 72).
3. The flesh is beneficial in tuberculosis, (SS, uttara, 41, 37).
4. The urine is of use in skin diseases, ulcers and poisoning, (SS, sūtra, 1, 104).
5. The juice of the dung relieves haemorrhages, (CS, chikitsā, 4, 69).
6. The kshāra of the bones are used internally in a variety of urinary disorders, (SS, chikitsā, 11, 9).

Atyūhah

Synonyms: Dāhukah, Dātyūhah (Chkp. on CS, sūtra, 27, 50); Jala-kākah, Kala-kaṇṭah (RN, 19).

English - Red-vented bulbul.

Type - Pratuda (CS).

Avakuśah

English - Cow-tailed monkey

Type - Paṇamrga (SS).

Description: This is a breed of monkey which has rounded fingers (golāṅgula). (NiS on SS, sūtra, 46, 74).

Babhruh

English - Large brown mongoose

Type : Prasaha (CS)

Description: Chkp describes babhru as being either an extremely hairy dog found in the proximity of hills, or a large mongoose, (CS, sūtra, 27, 35).

According to ARH (AHR, 6, 48), it is a bear.

Babhru-vaṭahā

English - Brown tree-pie.

Type : This is a bird which pecks and gobbles at its food (CS).

Bakah

Synonyms: Kankah, Bakotah, Tirtha-sevī, Tāpasah, Mīna-ghātī, Mrshādhyānī, Nīśchalāṅghrī, Dāmbhikah (RN, 19).

English - Heron.

Hindi - Bagulā,

Type : Plava (SS);
Ambuchāri (CS)

Description: This bird is whitish in colour (Chkp. on SS, sūtra, 27, 41; NiS on SS, sūtra, 46, 105; ARH on AHR, sūtra, 6, 51).

Balākā

Synonyms: Visha-kaṇṭhī, Śushkāṅgī, Dīrgha-kandharā (RN, 19).

English - Demoiselle crane.

Vernacular - Bagulī (Dalhaṇa)

Type : Plava (SS);
Ambuchāri (CS)

Description: This is a variety of Baka (NiS on SS, sūtra, 46, 105). It has a neck similar to a lotus-stalk, (ARH on AHR, sūtra, 6, 51).

Medicinal Action: The bones are used for fumigation in cases of poisoning. (AS, sūtra, 8, 119).

The meat is injurious if taken along with Vāruṇī (a kind of alcoholic drink) and Kulmāshā. (CS, sūtra, 26, 84).

Bhallūkah

Synonyms: Kapardakah, Varāṭah, Charāc-harah, Varyah, Bala-kṛīḍanakah.

English - Cowrie

Type : Kośastha (SS)

Description: That cowrie which is yellowish in colour, is knotty at its base and is oval is preferred for medicinal purposes. That which is 1½ nishka in weight is the best, that which is one nishka is of moderate efficacy, while the lighter ones are to be rejected (RRS, 3, 130-132).

Medicinal Action:

Rasa : Bitter and pungent

Virya : Hot

It alleviates kapha and vāta, is an aphrodisiac and is useful in ear-ache, ulcers, abdominal tumours, various types of abdominal colic, eye-diseases, sprue and tuberculosis. There is a bigger variety which is said to aggravate kapha and pitta, (RRS, 3, 132-133; DN, 3, 24-27).

Note:

1. Kapardika is to be purified before being employed as medicine.
2. Ḍalhaṇa while identifying Bhallūka as Kapardika remarks that a few others consider it as being a variety of Śambhūka, (NiS on SS, sūtra, 46, 108).

Śodhana: Cowrie is to be subjected to boiling for three hours in a dolā yantra containing kānjī, (RRS, 3, 134).

Māraṇa: RRS has not mentioned any process for incinerating Kapardika.

According to Other Texts: Kapardika is reduced to ashes if placed upon a charcoal fire until it bursts. (RJN, Vol.II, page 218).

Bhāsah

English - White-headed vulture

Type : Prasaha (SS, CS)

Description: This is a white-headed smoky-coloured vulture with a short beak, which is usually found near Gokulas (cow-pens). (NiS on SS, sūtra, 20, 24; 46, 74). It is ash-coloured, with a crown (Chkp on CS, sūtra, 27, 36; ARH on AHr, sūtra, 6, 48-49).

Bhedāśih

Synonyms: Bhekāśī (Ḍalhaṇa)

English - Small Parakeet.

Type : Pratuda (SS).

Medicinal Action: It vitiates all the three doshas (SS, sūtra, 46, 69).

Bhekah

Synonyms: Maṇḍūkah, Durdarah, Maṇḍah, Kasūchakah, Mahāvitah, Maṇḍavyah, Lūlakah, Śālūrah, Varshābhū, Kaṭuravah.

English - Frog

Type : Bhumiśaya (CS);

Description : It has poisonous fangs (CS).

Varieties:

1. There are eight kinds of frogs (SS, kalpa, 8, 51).
2. There is a bigger variety which is yellowish in colour, known as Rāja-maṇḍūkah. (Synonyms: Mahā-maṇḍūkah, Pītāṅgha, Varshāgoshah, Mahārava), (RN, 19).

Medicinal Action: The meat aggravates kapha, does not excessively aggravate pitta and is strengthening, (DN, 6, 483).

Its meat is very injurious to health, (CS, sūtra, 25, 39).

Bhṛngarājah

English - Fork-tailed Shrike
 Vernacular - Pakshirāja (Ḍalhana)
 Type : Pratuda (SS, CS)

Bhūmiśaya

A group of animals according to CS which burrow into the earth and consists of:

1. Bheka (frog)
2. Chillāṭa (water shrew)
3. Chitra-prshṭha (reticulated python)
4. Gaṇḍaka (gecko lizard)
5. Godhā (iguana lizard)
6. Kadalī (marmot)
7. Krshṇa-kākulī-mrga (black python)
8. Kūrchika (hedge hog)
9. Nakula (small mongoose)
10. Śallaka (porcupine)
11. Śvāvit (pangolin)
12. Śveta-kākulī-mrga (white python)
13. Śyāma-kākulī-mrga (dark-grey python)

Medicinal Action: The flesh of these animals possesses certain common medicinal properties.

Rasa : Sweet
 Guṇa : Heavy and unctous
 Vīrya : Hot

It alleviates vāta, aggravates pitta, enhances strength, is nourishing, an aphrodisiac and beneficial in persons who are accustomed to regular exercise and who have strong digestive powers.

References: CS, sūtra, 27, 37-38; 56-58.

Biḍālah

Synonyms: Mārjārah, Mūshaka-dveshī, Vṛshadamsāh, Śālāvṛkah, Māyāvī, Dīpta-lochanah, Visha-dantah.

English - Cat

Type : Prasaha (CS);
 Guhāśaya (SS)

Varieties: Cats are of six types:

1. Grāmya - which is domesticated
2. Vanya - which is wild
3. Toyajātah,
4. Pakshi-mārjārah
5. Vijjakah and
6. Sugandhi-vṛshaṇah, (SS utara, 41, 36).

DN however mentions only two other species:

1. Lomaśa-biḍālah: (Synonyms: Pūtikah, Pūtik-esarah, Sugandhimūtra patan-ah, Gandha-mārjārah).
2. Pingalah: (Synonyms: Ugra-biḍālah, Sugandhi-mūtra vṛshaṇah, Kastūrī). (DN, 6, 434-437).

Medicinal Action:

1. The fresh blood is used in picchā basti (a kind of enema), (SS, chikitsā, 38, 86).
2. Its bile antidotes all poison (SS, kalpa, 5, 68-73; AS, sūtra, 8, 29), and is used in graha-chikitsā, (SS, utara, 60, 40).
3. Its bile, urine, dung, hairs, etc. are used as collyrium, errhine, for fumigation, etc. in insanity, (CS, chikitsā, 9, 74).

Bileśaya

A group of animals which according to the classification of SS, burrow into the earth.

1. Ajagara (Indian python)
2. Godhā (Iguana lizard)
3. Kadalī (marmot)
4. Lomaśa-karṇa
5. Lopāka (fox)

6. Mahā-babhrū
7. Mrga-priyaka (boa)
8. Mūshika (mouse)
9. Nakula (mongoose)
10. Śalyaka (porcupine)
11. Sarpa (snakes)
12. Śaśa (rabbit)
13. Śvāvit (hedgehog)
14. Vṛsha-damśa

Medicinal Action: The flesh of these animals have the following properties:

Rasa	: Sweet
Guṇa	: Unctous
Vīrya	: Hot
Vipāka	: Sweet

It alleviates vāta, aggravates kapha and pitta, is constipative, and is useful in cough, polyuria, dyspnoea and emaciation.

References: SS, sūtra, 46, 78-79. (See - Jangala-Varga)

Chakorah

Synonyms: Chandrikā-pāyī, Chātakah, Sārangah, Megha-jīvanah, Kou-mudī, Jīvanah,

English - *Greek Pheasant*.

Type : Vishkira (SS, CS)

Description: This bird has red-eyes which are affected by merely gazing at poisoned food. (NiS on SS, sūtra, 46, 59; SS, kalpa, 1, 30, 31; ARH on AHr, sūtra, 6, 43).

Medicinal Action:

Rasa : Sweet

The eggs give instant energy and strength, and are useful in cough, sterility and heart-disease.

The flesh has the same properties as that of Chataka.

References: CS, sūtra, 27, 85; AHr, sūtra, 6, 44; RN, 19.

Chakravākah

Synonyms: Chakri, Chakra-rathī, Rathī, Rathānga-nāmā, Kāmī, Kokah, Bhūri-premā, Dvandva-chārī, Sahāyah, Kāntah, Rātri-viślesha-gāmi, Kāmukah.

English - Ruddy Sheldrake

Hindi - Chakvā,

Type : Plava (SS),
Ambuchārī (CS).

Description: These birds always go about in pairs during daytime and separate at night, (NiS on SS, sūtra, 46, 105).

Medicinal Action:

Guṇa : Unctous and heavy (the flesh)

The flesh alleviates vāta, is strengthening, appetizing and an aphrodisiac, (DN, 6, 454-455; RN, 19, 474).

Chāmarah

Synonyms: Vyajanah, Vanyak, Dhenu-gah, Bāladhi-priyah; the female animal is known as Chamarī (Synonyms: Dīrgha-vālā, Giri-priyā).

English - Yak

Hindi - Chamar-gayī, Chamar-gāy,

Type : Kūlachara (SS),
Anūpa (CS).

Description: It resembles a cow. It is referred to as Keśa-mṛtyu. (NiS on SS, sūtra, 46, 94). It is a wild cow found in jungles (ARH on AHr, sūtra, 6, 48-49).

Medicinal Action:

The Meat :

Rasa : Sweet

Guṇa : Unctous

Vipāka : Sweet

It alleviates vāta and pitta and relieves cough.

References: SS, sūtra, 46, 100; RN, 19, 431.

Chandrakah

English - A kind of silver fish.

Type : Sāmudra-matsya (marine fish)
(SS)

Description: This fish is rounded in shape, and is encircled by spines at its sides. (NiS on SS, sūtra, 46, 118; ARH on AHr, sūtra, 6, 51) (See - Ānūpa-Varga).

Charushkah

English - Gazelle

Type : Janghāla (SS);
Jāngala (CS).

Description: This is a beautiful (saffron-coloured) animal of slight build, a variety of mṛga (deer), (NiS on SS, sūtra, 46, 54; ARH on AHr, sūtra, 6, 43).

Chāshah

Synonyms: Karaṭāsah, Kanaka-vāyasah, Chāsah,

English - Blue Jay
Hindi - Nil-kanṭh
Vernacular - Karaṭāsana (Dalhaṇa)

Type : Prasaha (SS, CS)

Description: The bird has the (blue) colour of the Indra-nīla (sapphire) (NiS on SS, sūtra, 46, 74).

Chatakah

Synonyms: Kala-vinkah, Kāmukah, Nīla-kanṭhah, Dhūsarah, Dhānyabhakshah.

A smaller variety has the synonyms: Ati-sūkshmah, Gr̥ha-kartā, Akshamah, Bhīruh, Kṛshidviṣṭah, Kaṇapriyah.

English - Tree Sparrow

Type : Pratuda (CS);
Vishkira (SS).

The Meat:

Rasa : Sweet
Guṇa : Light and unctuous
Vīrya : Cold

It alleviates all the doshas, particularly vāta, is strengthening, an aphrodisiac and vyavāyi.

The Egg:

Rasa : Sweet

It is strengthening and is useful in impotence, cough, heart-disease and diseases of traumatic origin.

Note:

1. The juice of the eggs is efficacious in haemoptysis. (CS, chikitsā, 11, 25).
2. The fat (vasā) is not beneficial to health. (CS, sūtra, 25, 39).

References: CS, sūtra, 27, 75; DN, 6, 50; RN. (See - Kulinga)

Chillih

Synonyms: Chīrih, Kshudra gr̥dhrī (DN); Chīṇhah, Chilhah

English - Kite

Type : Prasaha (SS)

Medicinal Action:

The Meat:

Guṇa : Heavy

It aggravates the doshas (DN). It is beneficial in tuberculosis (SS).

References: SS, sūtra, 46, 74; DN, 6, 65.

Chitra-Prshthah

English - *Reticulated python*

Type : Bhūmīśaya (CS)

Description: This is one of the four varieties of the snakes 'Kākuli-mrga' which is also known as Māluyā-sarpa, (Chkp on CS, sūtra, 27, 37).

Chulukin

Synonyms: Śūsuh, Śīśu-mārah (Chkp), Chulluki

English - *Porpoise*

Type : Vāriśa (CS)

Description: See ARH on AHr, sūtra, 6, 52.

Medicinal Action: The fat of this animal is considered to be the best among aquatic animals, (CS, sūtra, 25, 38).

Dātyūhā

Synonyms: Jala-kākah, Kāla-kaṇṭakah

English - *Gallinule*

Vernacular - *Rāyuka (Dalhaṇa)*

Type : Pratuda (SS)

Description: This is a blind crow (andha kākah), (ARH on AHr, sūtra, 6, 46).

Medicinal Action:

The Meat:

Guṇa : Light

It is strengthening, nutritious, appetizing, beneficial to eyesight, confers longevity and is useful in tuberculosis and diseases of traumatic origin, (DN, 6, 470).

Dhartarāshṭrah

English - *Black-legged swan*

Description: This is a variety of swan, with a smoke-coloured body, (RN, 19, 477).

Medicinal Action:

The Egg:

Rasa : Sweet

It instantly bestows strength, and is beneficial in heart-diseases, traumatic diseases, cough and impotence, (CS, sūtra, 27, 85; DN, 6, 456), (See - Hamsah).

Dhūmikā

Synonyms: Dhūmyātaḥ (Hemādri on AHr, sūtra, 6, 49).

English - *Owlet*

Type : Prasaha (CS)

Diṇḍimānakah

English - *Toucan*

Type : Pratuda (SS, CS)

Description: This is a bird which has a loud voice like the beating of a drum (Chkp and Dalhaṇa).

Dvīpī

Synonyms: Vyāghrah, Pancha-nakhah, Śārdūlah, Guhāśayah, Bhīruh, Puṇḍarikah, Tīkshṇa-damshṭrah, Tapasvī, Ghora-darśanah, Nakhāyūdhah, (DN, 6, 391).

English - *Panther*

Hindi - *Chittā,*

Vernacular - *Chitraka (Dalhaṇa)*

Type : Guhāśaya (SS), Prasaha (CS)

Description: This is a variety of Vyāghra with a coloured skin. (NiS on SS, sūtra, 46, 72; chikitsā, 9, 19). It attacks and kills other animals, (NiS on SS, kalpa, 7, 43).

Medicinal Action:**The Meat:**

Rasa : Sweet
 Guṇa : Light and unctous
 Vīrya : Hot

It alleviates vāta and pitta, is appetizing, an aphrodisiac and strengthening.

Note:

1. The skin is smeared with ghee and burnt for fumigation, (AS, uttara, 8).
2. The bile is used for antidoting poisons, (AS, sūtra, 8, 29).

References: AS, uttara, 46; DN, 6, 392; RN, 19, 410, (See - Vyāghra).

Eṇah

Synonyms: Kṛshṇa-hariṇah, Kṛshṇa-mṛgah, Kṛshṇa-sārah

English - Fawn deer, Black deer
 Hindi - Kālā-hariṇ

Type : Janghāla (SS),
 Jāngala (CS)

Description: This is a black deer (NiS on SS, sūtra, 14, 36; ARH on AHṛ, sūtra, 6, 43).

Medicinal Action:**The Meat:**

Rasa : Astringent and sweet
 Guṇa : Light
 Vīrya : Cold
 Vipāka : Sweet

It alleviates all the doshas, is constipative, a diuretic (according to NiS), a heart-tonic, appetizing, strengthening and relieves fever, anaemia, tuberculosis, warts, enlargement of

spleen, flatulence, constipation, obesity, impotence, cough and dyspnoea.

Note:

1. The flesh is not to be used by persons suffering from Prameha, (NiS on SS, sūtra, 46, 55).
2. The blood is administered along with milk, etc. in cases of acute haemorrhages, (SS, sūtra, 14, 36; uttara, 45, 28).
3. The flesh of the Eṇa is considered to be the best among that of the deer species, (CS, sūtra, 25, 38).
4. The flesh is given along with saindhava salt, ghee, etc. in Timira (an eye-disease), (SS, uttara, 17, 35).
5. The medicated ghee prepared from the meat-juice, milk, drākshā, aśvagandha and pippali is useful in tuberculosis, (SS, uttara, 41, 49).

References: CS, sūtra, 27, 77- 78; SS, sūtra, 46, 55; AMD, page 89.

Gajah

Synonyms: Hastī, Dvīpah, Karī, Dviradah, Vāraṇah, Kunjarah, Dantī, Kumbhī, Stambhe-ramah, Sindhurah, Kareṇuh, Kariṇī, Kalabhah, Kari-śāvakah, Bhadrah, Drumārih, Shasṭi-hāyanah, Pushkarī, Mātangah.

English - Elephant.
 Hindi - Hāthi

Type : Kūlachara (SS),
 Anūpa (CS).

Medicinal Action:**The Milk:**

Rasa : Sweet
 Anu-rasa : Astringent
 Guṇa : Heavy and unctous
 Vīrya : Cold

It is an aphrodisiac, strength-giving, and beneficial to eye-sight, (CS, sūtra, 27, 223; SS, sūtra, 45, 58; DN, 6; RN, 15).

The Curd:

Rasa : Astringent
Anu-rasa : Astringent
Vīrya : Hot

It alleviates kapha, is difficult to digest, increases the bulk of stools, is strengthening and relieves abdominal colic, (SS, sūtra, 45, 74; DN, 6, 197; RN, 15).

The Fresh Butter:

Rasa : Astringent and bitter
Guṇa : Light
Vīrya : Cold

It alleviates kapha and is anthelminthic, (RN, 115).

The Ghee:

Rasa : Bitter and astringent
Guṇa : Light

It antidotes poison, alleviates kapha, is constipative, diminishes the amount of urine, is appetizing, antidotes poison and is useful in worms and skin diseases, (SS, sūtra, 45, 104; DN, 6; RN, 15).

The Meat:

Rasa : Sweet, sour and salty
Guṇa : Dry, heavy and unctous
Vīrya : Hot

It alleviates kapha and vāta, aggravates pitta, is difficult to digest, is nourishing and emaciating, (SS, sūtra, 46, 96; DN, 6; RN, 17).

The Urine:

Rasa : Bitter and salty
Guṇa : Sharp

It alleviates vāta, aggravates pitta, is a purgative and relieves kilāsa (a skin disease), (SS, sūtra, 45, 226).

The Rut:

Rasa : Bitter
Guṇa : Unctous

It promotes growth of hair, antidotes poison, and is useful in epilepsy, skin diseases, pruritus and ulcers, (RN).

Note :

1. The fat is considered to be unwholesome, (CS, sūtra, 25, 39).
2. The kshāra of the bones is administered internally in a particular kind of urinary disorder, (SS, chikitsā, 11, 9).

Gaṇḍūpadah

Synonyms: Bhūnāgah, Kinchulukah, Bhū-jantū, Rakta-jantukah, Rakta-tuṇḍakah.

English - *Earth-worm*

Medicinal Action: The meat is beneficial to those suffering from tuberculosis. The essence is considered to be rejuvenative. The animal is used extensively for purification of metals and minerals, (SS, uttara, 41, 26; RN, 13, 8).

Gavayah

Synonyms: Vanagoh, Bala-bhadrah, Mahā-gavah, Vanadhenuh, Bhilla-gavī.

English - *Goyal Ox*

Hindi - *Vangau,*

Type : Kūlachara (SS),
Anūpa (CS).

Description: This animal resembles a cow, but lacks a hump and dew-lap, (Chkp on CS, sūtra, 27, 39; ARH on AHr, sūtra, 6, 50; NiS on SS, sūtra, 46, 94).

Medicinal Action:**The Meat:**

Rasa : Sweet
 Guṇa : Unctous
 Vipāka : Sweet

It is an aphrodisiac and relieves cough.

References: SS, sūtra, 46, 97; RN, 19, 430; AS, sūtra, 8.

Giriśa

Synonyms: Girikā, Girivartikā

English - Mountain Quail

Type : Pratuda (SS),
 Vishkira (CS).

Description: This bird is usually found near mountainous areas. It is a variety of the bird vartikā. (NiS on SS, sūtra, 46, 59; ARH on AHṛ, sūtra, 6, 44-45).

Godhā

Synonyms: Ghorpaḍā, Pancha-nakha-rājah, Khara-charmā, Goudherah, Mahāvishah, Dāru-matsyah, Pulakah, Dīrgha-pucchikā.

English - Iguana lizard

Type : Bileśaya (SS),
 Bhūmiśaya (CS).

Description: It grasps at objects with five nails, (ARH on AHṛ, sūtra, 6, 47).

Medicinal Action:**The Flesh:**

Rasa : Sweet and astringent
 Virya : Cold

It alleviates vāta and pitta, purifies the blood, antidotes poison, is strengthening, nourishing and relieves dyspnoea and tuberculosis, (DN, 6; RN, 19).

Note:

1. The flesh antidotes poison, (AS, sūtra, 7, 97).
2. The meat-juice relieves hiccoughs, (SS, uttara, 50, 29).
3. The meat-juice is applied externally in skin diseases, (CS, chikitsā 7, 88).
4. The bile is used in a recipe given in cases of poisoning, (SS, kalpa, 5, 68).
5. The bile is also useful in eye diseases, (AS, uttara, 16); and in grahas, (SS, uttara, 60, 40).
6. A medicated oil prepared from the bile is used both internally and externally in epilepsy, (SS, uttara, 61, 24-25).
7. The flesh, if taken with milk is poisonous, (SS, sūtra, 20, 8).
8. A pregnant woman should avoid regular use of the flesh, (SS, śārīra, 8, 21).
9. The liver of this animal is exceedingly useful in relieving night blindness, (SS, uttara, 17, 24).

Goh (Includes Vrshabhah)

Synonyms: (Of Ox): Balivardah, Dāntah, Gorakshah, Vrshabhah, Damyah, Dhūryah, Dhurīṇah, Śāṅkarah, Haravāhanah, Gonāthah, Dhavalah.

(Of Cow): Śrgiṇī, Sourabheyī, Dogdhnī, Dhenuh, Payasvinī, Mātosrā, Rohiṇī, Arghyā, Kalyāṇī, Pāvanī.

English - Cow; Ox

Hindi - Gāy

Type : Grāmya (SS),
 Prāsaha (CS).

Medicinal Action:**The Meat:**

(Of Cow) - Guṇa : Heavy

It alleviates vāta, is auspicious, is useful in vāta diseases, catarrh, intermittent fever, dry cough, fatigue, dyspnoea, excessive appetite and wasting of muscles.

(of Ox) - Guṇa : Heavy and unctous.

It alleviates vāta, aggravates kapha and pitta, is nourishing, strength-giving and engenders catarrh, (CS, sūtra, 5, 11; 27, 79; SS, sūtra, 46, 85; DN, 6; RN, 19).

The Milk:

Rasa : Sweet
Guṇa : Heavy and unctous
Virya : Cold
Vipāka : Sweet

It alleviates vāta and pitta, bestows longevity, is nourishing, an aphrodisiac, strengthening, a heart tonic, increases breast-milk, relieves haemorrhages and is slightly abhishyandi (i.e. causes narrowing of or coating on blood vessels), (SS, sūtra, 45, 50-51; DN, 6; RN, 15; BP, pūrva, 6, 14).

The milk of a newly delivered cow and of a cow without a calf aggravates all the doshas. The milk of a cow which has delivered long ago alleviates all the doshas, is refreshing and strengthening, (BP, pūrva, 6, 14, 11-12).

The Curds:

Rasa : Sweet
Guṇa : Unctous
Virya : Cold
Vipāka : Sweet

It alleviates vāta, is appetizing, strengthening and constipative, (SS, sūtra, 45, 67-68; DN, 6; RN, 15).

The Ghee:

Rasa : Sweet
Virya : Cold
Vipāka : Sweet

It alleviates vāta and pitta, antidotes poison, is appetizing, rejuvenative, an aphrodisiac, strength-giving, a heart-tonic, is beneficial to the eye-sight, enhances intelligence and memory, and is useful in fatigue, herpes, emaciation and diseases of traumatic origin, (SS, sūtra, 45, 97; DN, 6; RN, 15).

The ghee is of two types, one is extracted from milk and the other is extracted from curds. The former is constipative, alleviates vāta and pitta, and is useful in eye-diseases, burning pains, diseases of impure blood, syncope, vertigo and Mada, (NiS on SS, chikitsā, 31, 4; BP, pūrva, 6, 18).

Ghee is not useful in tuberculosis, in children, aged persons, in diseases of kapha, constipation, indigestion, alcoholism, Viśūchika and fever (BP, ibid).

The Urine:

Rasa : Sweet, pungent, bitter and astringent
Guṇa : Sharp, light and alkaline
Virya : Hot

It alleviates kapha and vāta, aggravates pitta, is appetizing, a laxative, digestive, emaciating, a brain-tonic and is useful in obesity, abdominal colic, ascites, abdominal tumours, constipation, flatulence, pruritus, diseases of eyes and mouth, Kilāsa (a type of skin disease), rheumatism, renal colic (basti-ruk), cough, dyspnoea, swellings, jaundice, anaemia, catarrh, suppression (or retention) of urine, enlargement of the spleen, and skin diseases, (CS, sūtra, 1, 101; 3, 13; SS, sūtra, 15, 32; 39, 6; 45, 220-221; AS, sūtra, 6, 143; DN, 6; BP, pūrva, 6, 19).

Note:

1. Cow's milk is considered the best among the milk of various animals, (CS, sūtra, 25, 38).

2. A few drops of the urine when dropped into the ears relieves earache, (BP).
3. The bile is used externally in skin diseases. (CS, sūtra, 3, 6) and as errhine and collyrium in insanity, (CS, chikitsā, 9, 67).
4. A medicated oil prepared from the bile and a few other drugs is used both internally and for massage in epilepsy, (CS, uttara, 61, 24).
5. The hair is used for fumigation purposes, (KS).
6. The ashes of the hairs is administered internally with honey in hicccoughs, (SS, uttara, 50, 20).
7. The juice of cow-dung is useful in haemorrhages (CS, chikitsā, 4, 69) and in rat bites, (SS, kalpa, 7, 38).
8. The dried cow-dung is used for applying fomentation, (SS, chikitsā, 4, 30).
9. The soot of the burnt teeth is used as collyrium, (SS, uttara, 17, 68).

Gokarṇah

English - Cow-eared deer
Vernacular - Gon (Dalhaṇa)

Type : Kūlachara (SS),
 Jāngala (CS).

It is a herbivorous animal (CS).

Description: This animal resembles a donkey, but has ears (and a mouth) which are like those of a cow. It is a variety of deer. (Chkp on CS, sūtra, 27, 47; NiS on SS, sūtra, 46, 94; ARH on AHṛ, sūtra, 6, 43).

Medicinal Action:

The Meat:

Rasa : Sweet
 Guṇa : Unctous
 Vipāka : Sweet

It alleviates kapha and relieves haemorrhages, (SS, sūtra, 46, 104).

Gokshedah

Synonyms: Gonardah (Dalhaṇa and ARH)

English - Hill Patridge
Vernacular - Ghodā-kanka
 (Chkp on CS, sūtra, 27, 47-49)

Type : Pratuda (SS),
 Vishkira (CS),

References: NiS on SS, sūtra, 46, 47; ARH on AHṛ, sūtra, 6, 44-45.

Gṛdhrah

Synonyms: Tārksyah, Śālmālīsthah, Khagendrah, Bhujāgantakah, Vajratuṇḍah, Dākshāyyah, Garutmān, Dushṭa-darśanah, Vainateyah, Dūra-darśanah.

English - Vulture

Type : Prasaha (CS, SS)

Description: This meat-eater is large, black in colour, and is far-sighted, (NiS on SS, sūtra, 46, 74; ARH on AHṛ, sūtra, 6, 48-49).

Variety: A variety of Gṛdhra is the Raṇa-gṛdhra.

Synonyms: Karakah, Nīla-picchah, Lamba-karṇah, Raṇa priyah, Raṇa-pakshī, Piccha-bāṇah, Bhayankarah, Sthūla-nīlah.

Medicinal Action:

The Meat:

Rasa : Sweet
 Guṇa : Unctous
 Vīrya : Hot

It aggravates pitta, is strengthening, nourishing, is beneficial in tuberculosis, eye-diseases and aggravates burning pains and haemorrhages.

Note:

1. The flesh is given to induce corpulence in tuberculosis, (SS, sūtra, 41, 36).
2. The stools are applied externally in arbuda engendered by vitiated kapha, (AS, uttara, 35).
3. The fat (vasā) is used as collyrium in certain eye-diseases. (timira), (CS, uttara, 17, 35). The kshāra is applied externally in surgical wounds, (AS, uttara, 40).

References: DN, 6; RN, 19.

Guhāśaya-Varga

This group which consists of cave-dwelling animals includes the following:

1. Dvīpi (panther)
2. Mārjāra (wild cat)
3. Mṛgaivārūka
4. Rksha (bear)
5. Simha (lion)
6. Śrgāla (jackal)
7. Vṛka (wolf)
8. Vyāghra (tiger)
9. Tarakshu (hyena)

The animals of this group share some medicinal properties.

Medicinal Action:

Rasa : Sweet
Guna : Heavy and unctous
Vīrya : Hot

The flesh alleviates vāta, is strengthening and is beneficial if taken regularly by patients suffering from eye-diseases and Guhya-rogas

References: SS, sūtra, 46, 72-73.

Gr̥ha-kulinga

Synonyms: Puṇḍra-chaṭakah

English - House Sparrow
Vernacular - Grāma-chaṭaka (Dālhaṇa)
Type : Pratuda (SS),
(See - Kulinga).

Hamsah

Synonyms: Dhartarāshtrah, Rāja-hamsah, Manoramah, Śvetah, Dhavala-pakshī, Chakrāṅgh, Mānasālayah

English - Common swan
Hindi - Hams,

Type : Plava (SS),
Ambuchāri (CS).

Description: It has a low, indistinct voice and a graceful gait. (NiS on SS, sūtra, 46, 105).

Varieties: This is another variety named Kala-hamsa.

Synonyms: Jala-padah, Bandhurah, Kādambah, Kala-nāḍah, Marā-lakah.

Medicinal Action:**The Meat:**

Rasa : Sweet
Guna : Heavy and unctous
Vīrya : Hot

It alleviates vāta and pitta, is an aphrodisiac, nourishing, strengthening, enhances voice and complexion, and relieves gout.

References: CS, sūtra, 27, 66; DN, 6; RN, 19.

Note:

1. The eggs are used as aphrodisiac, (AS, uttara, 50). (See - Kādambah).

Hariṇah

English - White Deer, Black Buck

Type : Janghāla (SS),
Jāṅghala (CS).

Description: This is a deer, which is copper-coloured, (NiS on SS, sūtra, 14, 36; Chkp on CS, sūtra, 27, 46; ASH on Ahr̥, sūtra, 6, 43).

Hārīṭah

English - Yellowish-green Pigeon
Vernacular - Haritāla (Ḍalhaṇa)

Type : Pratuda (SS)

Description: This bird is greenish-yellow in colour, (NiS on SS, sūtra, 46, 67; ARH on AHr, sūtra, 6, 46).

Indrābhah

Synonyms: Malla-kankah

English - Hedge-sparrow.

Type : Vishkira (CS)

Description: This bird resembles the kanka and is many-coloured, (ARH on AHr, sūtra, 6, 44-45).

Jambukah

Synonyms: Śrgālah, Gomāyuh, Koshtṛkah, Śivah, Bhallūkah, Mṛga-dhūrtah, Śāla-vṛkah, Pheravah, Vanchakah, Kroshtā, Śivāluh, Pheraṇḍah, Vyāghra-sevakah.

English - Jackal

Type : Guhāśaya (SS),
 Prasaha (CS).

References: DN, 6; RN, 19.

Jāngala-Varga

SS has classified the animal kingdom into two divisions – the Jāngala or animals in grasslands and dry areas, and the Anūpa or aquatic animals or animals in low-lying, marshy areas.

The Jāngala division consists of eight groups:

1. Janghāla (swift-footed animals).
2. Vishkira (birds which peck at their food after first scattering them with their claws).

3. Pratuda (birds which pick up and gobble their food)
4. Guhāśaya (cave-dwelling animals)
5. Prasaha (animals which tear their food)
6. Paṇa-mṛga (tree-dwelling animals).
7. Bileśaya (burrowing animals).
8. Grāmya (domesticated animals) (SS, sūtra, 46, 53).

According to CS, the animals living in arid, mountainous areas where water is scarce and vegetation meagre, are known as Jāngala. These animals are:

1. Chārushka (gazelle)
2. Eṇa (fawn deer)
3. Gokarṇa (cow-eared deer)
4. Hariṇa
5. Kāla-pucchaka (black-tailed deer)
6. Koṭṭa kāraka (barking deer)
7. Kuranga (Indian antelope)
8. Mṛga- mātṛkā
9. Pṛshata (spotted deer)
10. Rāma (Kashmīr red deer)
11. Rṛshya
12. Śambara (sambhar)
13. Śarabha
14. Śāśa (Hare)
15. Śvadamshtṛa (mouse deer)
16. Uraṇa (oorial or wild sheep)
17. Varapota (small antelope)

The animals of this group have some medicinal properties in common.

Medicinal Action:

Rasa : Sweet and astringent
 Guṇa : Light
 Vīrya : Cold

The flesh of these animals particularly alleviates pitta, vāta to a slight extent and is

beneficial in disorders caused by the vitiated doshas, originating at first with kapha. (Pittottare vātamadhye sannipāte kaphānuge) (CS, sūtra, 27, 45-46; 59-60). (See - Drug in Vol. II).

Janghāla

Refers to animals which have a strong, well-developed knee, i.e. which are swift-footed. The animals included in this group are:

1. Chārushka (gazelle)
2. Eṇa (black deer)
3. Hariṇa (deer)
4. Karāla (musk deer)
5. Kṛta-mala (spotted antelope)
6. Kuranga (roe deer)
7. Mṛga mātṛka (female roe deer)
8. Prshata (spotted deer)
9. Rksha (blue deer)
10. Śarabha (Kashmir deer)
11. Śvadamshṭra (mouse deer)

Medicinal Action:

The Meat:

Rasa : Sweet and astringent
Guṇa : Light and sharp

It alleviates vāta and pitta, is a heart-tonic and a diuretic.

References: SS, sūtra, 46, 45. (See -Jāngala-Varga)

Jatukā

Synonyms: Charma-chaṭikā

English - Lac insect

References: Chkp. on CS, chikitsā, 14, 48.

Jīvanjīvakah

English - Peacock pheasant, Chukar
Vernacular - Kuricha (Dalhaṇa)

Type : Plava (SS),
Pratuda (CS).

Description: This animal has one abdomen and twin heads. It is considered to fall dead on perceiving poison, (ARH on AHṛ, sūtra, 6, 46; NiS on SS, sūtra, 46, 105).

References: NiS on SS, kalpa, 1, 31; AHṛ, sūtra, 7, 15, (See - Ānūpa-varga).

Kacchapah

Synonyms: Kamathah, Kūrmah, Gūḍhāṅg-ah, Dharanīdharah, Kacchesṭah, Palvalā-vāsah, Vṛttah, Kāthina-prshṭhakah.

English - Turtle, Tortoise
Hindi - Kacchuvā,

Type : Pādina (SS),
Vāriśa (CS).

Varieties: There are many kinds of turtles with various shapes and sizes.

DN mentions a bigger turtle named Kūrma-rājah (Synonyms: Mahā-matsyah, Guptāṅgah, Chitra-kushṭah, Dharanī-dhāraṇa-kshamah).

Medicinal Action:

The Meat:

Guṇa : Unctous

It alleviates vāta, is an aphrodisiac and strengthening.

Note:

1. The eggs are employed as an aphrodisiac, (SS, sūtra, 26, 26).
2. The bile is made use of as collyrium in certain eye-diseases, (SS, uttara, 17, 14).

3. The flesh increases intelligence and memory and is beneficial in tuberculosis (wasting), (CS, sūtra, 27, 84).
4. The soot (mashī) is applied externally in enlargement of the cervical glands (gaṇḍamālā), (AS, uttara, 35).

References: NiS on SS, sūtra, 46, 109; DN, 6; RN, 19, (See - Ānūpa-Varga).

Kāchākshah

Synonyms: Kapardiyākah

English - Indian reef heron.
Vernacular - Bahudī (Dalhaṇa)

Type : Plava (SS)

References: NiS on SS, sūtra, 46, 105, (See - Ānūpa-Varga).

Kadalī

English - Marmot.
Vernacular - Kadalī-handa (Dalhaṇa)
 Kadalī-haṭṭa (Chkp.)

Type : Bileśaya (SS),
 Bhūmiśaya (CS).

Description: This is a big, cat-like animal resembling a tiger, found in eastern India, (NiS on SS, sūtra, 46, 78; chikitsā, 8, 37).

Kādambhah

Synonyms: Kala-hamsah, Kala-nādah, Marālakah, Jala-pādah, Bandhurah.

English - Grey leg goose

Type : Plava (SS),
 Ambuchāri (CS).

Description: It is excessively greyish in colour, (NiS on SS, sūtra, 46, 105) (See-Ānūpa-Varga).

Kākah

Synonyms: Vāyasah, Dvānkshah, Kāṇah, Arisṭah, Ulūkajit, Dhūli-janghah, Nimitta-krt, Balibhuk, Chirajīvi, Sakṛtprajah, Balipushtah, Kouśikārih, Chirāyah, Karāṭah, Muk-harah, Kharah, Ātma-ghoshah, Mahālolah, Chalāchalāh.

English - Crow

Type : Prasaha (CS, SS)

Variety: There is another variety of crow known as Dronah. (Synonyms: Drona-kākah, Kāṇah, Vāyasah, Kākolah, Aranya-vāyasah, Vanavāsī, Krūra-rāvi, Phala-priyah).

Medicinal Action:

The Flesh:

Guna : Light

It bestows longevity, is strengthening, nourishing, appetizing, beneficial to eye-sight and is useful in wasting diseases and diseases of traumatic origin. The flesh is given to patients of tuberculosis in order to enable them to gain weight.

References: SS, uttara, 41, 36; DN, 6, RN, 19.

Kāka-tuṇḍakah

Synonyms: Śveta-kāraṇḍavah (AS, sūtra, 7).

English - River tern

Type : Ambuchāri (CS)

Kākulī-mṛgah

English - Python
Vernacular - Māluyā-sarpa (Clikp.)

Type : Bhūmiśaya (CS)

Varieties: There are four kinds of kākulī-mṛga: white, black, bluish and many-coloured.

References: CS, sūtra, 27, 37.

Kālā-pucchakah

English - *Black-tailed deer*

Type : Kūlachara (SS),
Jāngala (CS).

Description: This is a species of deer having a lustrous black tail. (NiS on SS, sūtra, 46, 94), (See - Ānūpa Varga).

Kankah

Synonyms: Loha-prshthah, Samdam-śavadanah, Kaharah, Raṇālanka-raṇah, Krūrah, Āmisha-priyah, (RN, 19). Vakra-chanchuh, Dīrgha-chan-chuh, Loha-prshthah, Pāṇḍu-varṇa-bhāk, Bānapatrarha, Paks-hakah, Pakshādhah, Dīrgha-pādah, (NIS).

English - *Heron*
Vernacular - *Kanka-malla (Dalhana)*

Type : Prasaha. (SS),
Vishkira (CS)

Descriptions: This bird has a long black, curved beak, and is bright and whitish in colour, (NiS on SS, chikitsā, 35, 9; sūtra, 46, 74).

Medicinal Action: The dung is used to promote suppuration in ripened swellings (abscesses).

References: SS, sūtra, 37, 10.

Kapinjalah

Synonyms: Ganjalah, Goura-tittirih

English - *Partridge, Grey Partridge*

Type : Vishkira (SS, CS)

Description: This is a grey-coloured tittiri bird (NiS and Chkp).

Medicinal Action: The flesh is light, cold, useful in diseases of vāta and kapha and in haemorrhages.

References: SS, sūtra, 46, 62; CS, sūtra, 27, 68; RN, 19. (See - Tittirih).

Kapotah

Synonyms: Pāṇḍukah, Vanavāsī

English - *Wood Pigeon, Spotted Pigeon*

Type : Pratuda (SS, CS)

Description: This is a kind of Pārāvata which resides in forests.

Medicinal Action:

The Meat:

Guṇa : Light

Vīrya : Cold

It is constipative, reduces the amount of urine, and alleviates kapha and pitta.

Note:

1. The dung is used to promote suppuration (dārana) in ripened abscesses, (SS, sūtra, 37, 9-10).
2. It has to be scrupulously avoided by patients who are being administered śilājatu and svarṇa-mākshika, (SS, chikitsā 13, 19).
3. The dung is also applied externally in arbuda of the kapha variety, (SS, chikitsā, 18, 36; AS, uttara, 35).

References: CS, sūtra, 27, 73; DN, 6; RN, 19 (See - Pārāvata)

Karālah

Synonyms: Kastūrī-mrgah (Dalhana)

English - *Musk deer*

Type : Janghāla (SS)

Medicinal Action: The flesh is considered to be generally beneficial to all living beings, (SS, sūtra, 20, 5).

Kāraṇḍah

English - White-fronted goose, Coot
Vernacular - Karahar (Ḍalhaṇa)

Type : Plava (SS),
Ambuchāri (CS).

Description: This bird is whitish in colour and resembles a hamsa, (ARH on AHṛ, sūtra, 6, 51). According to NiS and Chkp, this bird has a beak shaped like that of a crow, is long-footed, blackish in colour, and is a variety of hamsa. (NiS on SS, sūtra, 46, 105; Chkp on CS, sūtra, 27, 41).

Karkaṭah

Synonyms: Kulīrah, Samdamśah, Panka-vāsah, Tiryak-gāmī, Ūrdhva-dṛk

English - Common crab

Type : Pādina (SS),
Vāriśa (CS)

Varieties: There are two types of karkaṭa, one white-coloured and the other blackish, (NiS on SS, sūtra, 46, 109).

Medicinal Action: The flesh is cooling, an aphrodisiac, nourishing and purifies the blood, (DN, 6). (See - Ānūpa-Varga).

Kesari

Synonyms: Simhah, Pancha-mukhah, Dṛptah, Hariḥ, Mṛga-rājah, Vikrāntah, Śveta-pingalah, Nakhī, Mānī, Kravyādah, Sūrah, Kaṇṭhīravah, Dviradāntakah, Bahubalah, Nidrāluḥ, Parākramī.

English - Lion
Hindi - Simh

Type : Guhāśaya (SS),
Prasaha (CS).

It has poisonous fangs (CS)

Medicinal Action:

The Meat:

Rasa : Sweet
Guṇa : Heavy and unctous
Vīrya : Hot
Vipāka : Pungent

It alleviates vāta, is strengthening and is useful in eye-diseases and Guhya-rogas, (SS, sūtra, 46, 73; AHṛ, sūtra, 9, 28).

Note:

1. The flesh is beneficial in wasting diseases, (CS, chikitsā, 8, 153).
2. The skin is used for fumigation purposes, (AS, uttara, 4).
3. The bile antidotes poison, (AS, sūtra, 8, 29).

Khaḍgih

Synonyms: Khangah, Gaṇḍakah, Krodhī, Mukha-śṛṅgah, Mukha-balī, Vajra-charmā, Prīṇasah.

English - Rhinoceros
Hindi - Gaṇḍā

Type : Kūlachara (SS),
Anūpa (CS).

Medicinal Action of the Flesh:

Rasa : Astringent and sweet
Guṇa : Dry

It alleviates kapha and vāta, is strengthening, engenders coating on the blood vessels (is abhishyandi), nourishing and enhances complexion.

Note:

1. The flesh is beneficial in wasting diseases, (CS, chikitsā, 8, 154).

2. The flesh has properties similar to beef, (KS, khila, 24, 30).

References: SS, sūtra, 46, 103; CS, sūtra, 27, 54.

Khanjarīṭakah

Synonyms: Khanjanakah, Chāpa-nāmā, Kikīdivih, Chāshakah, Sārangah, Megha-jīvanah, Bharadvājah, Kṛkarāṭah, Vyāghrāṭah, Puṇya-darśanah, Samanta-bhadraḥ, Subhadraḥ, Dvīpa-vāsī, Nīlāṅgaḥ.

English - Wagtail

Vernacular - Kavadiyā (Dalhaṇa)

Type : Pratuda (SS)

Description: This bird has a fast and graceful gait, (NiS on SS, sūtra, 46, 67).

Varieties: There are two varieties, black and white, (NiS).

References: DN, 6; RN, 19.

Kharah

Synonyms: Gardabhah, Śanku-karṇah, Bāleyah, Rāsabhah, Bhāravāḥ, Bhūrigamah, Dhūsarah, Reṇu-bhūshitah, Chakrīvān.

English - Ass

Marathi - Gādhav

Type : Grāmya (SS),
Prasaha (CS).

Medicinal Action:

The Flesh:

Rasa : Pungent

Guṇa : Light

Vipāka : Pungent

It aggravates pitta, is strengthening and nourishing. The flesh of the wild ass is to be preferred.

The Milk:

Rasa : Sweet and sour

Anu-rasa : Salty

Guṇa : Dry and heavy

It alleviates vāta, is appetizing, strengthening and is useful in cough, dyspnoea and diseases of children.

The Curds:

Rasa : Sweet and sour

Guṇa : Light and dry

Vīrya : Hot

It alleviates vāta, is digestive and appetizing.

The Fresh Butter:

Rasa : Astringent

Guṇa : Light

Vīrya : Hot

It alleviates kapha and vāta, is appetizing, strength-giving, and relieves urinary disorders.

The Ghee:

Rasa : Astringent

Guṇa : Light

Vīrya : Hot

It alleviates kapha, is appetizing, strengthening and relieves urinary disorders.

The Urine:

Rasa : Pungent and alkaline

Guṇa : Sharp

Vīrya : Hot

It alleviates kapha and vāta, is auspicious, and is useful in mental disturbances, worms, sprue, epilepsy, urinary disorders, tremors, heart-diseases and poisoning by gara-visha.

Note:

1. The flesh is beneficial in wasting diseases, (SS, utara, 41, 37).
2. The dung is useful in urinary disorders, including diabetes, (SS, chikitsa, 11, 11).
3. A medicated ghee which contains its milk, meat-juice, juice of the dung, etc. is beneficial in tuberculosis, (SS, utara, 41, 49).

References: CS, sūtra, 1, 104, AHr, sūtra, 5, 82; AS, sūtra, 6, DN, 6; RN, 15; 19.

Kokilah

Synonyms: Para-prṣṭah, Kṛṣṇah, Para-bhṛtaḥ, Vasanta-dūtaḥ, Tāmrākṣhaḥ, Gandharvaḥ, Vana-bhūṣhaṇaḥ, Dhūrtā, Kāmāndhaḥ, Kuhūraḥ, Kala-kaṇṭhaḥ, Kākaliravaḥ, Pikaḥ, Madhu-gāyaṇaḥ, Mattaḥ, Madana-pāṭhakaḥ, Madhurālāpā, Madhūdayā.

English - Indian Koel

Type : Pratuda (CS)

Medicinal Action:**The Flesh:**

Rasa : Sweet

It alleviates kapha, is strengthening, constipative, nourishing and is useful in cough and eye-diseases.

References: DN, 6; RN, 19.

Konālakah

English - A species of aquatic quail
Vernacular - Pāṇiya-vartikā (Dalhaṇa)

Type : Plava (SS)

Description: This bird has a blue coloured back and a white belly. (NiS on SS, sūtra, 46, 105). (See - Ānūpa-Varga).

Koyashtikah

Synonyms: Pechah, Mechakah, Pucch-āntabhāga-lohitah, Utkrośah, Kurarah, Tittibhah (DN, 6), Koyangakā (Dalhaṇa),

English - Green-bill coucal
Vernacular - Koyanga (Dalhaṇa)

Type : Pratuda (SS)

Description: This bird has long thighs (NiS on SS, sūtra, 46, 67).

Medicinal Action: The flesh alleviates kapha and vāta, (DN, 6).

Krakarah

English - A kind of partridge
Hindi - Kareṭu-kuvār
Vernacular - Kayara (Dalhaṇa)

Type : Vishkira (SS)

Description: This bird is bigger than the Chātaka bird, has a yellowish-black throat, black beak and claws, is reddish back and utters cries like 'krakach, krakach'. (NiS; ARH on AHr, sūtra, 6, 44-45).

Medicinal Action: The flesh is light, a heart-tonic, a brain-tonic, strengthening, aphrodisiac, appetizing and alleviates vāta and pitta.

References: SS, sūtra, 46, 63-64; NiS on ibid, 59.

Kraunchah

Synonyms: Krochavi, Dīrgha-ravaḥ, Rātri-jāgarah, Krauchirah.

English - Demoiselle crane or Pond Heron
Vernacular - Krounchi, Kaichara (Dalhaṇa)

Type : Plava (SS), Ambuchāri (CS)

Varieties: There is another kind of krauncha which is blue in colour (Synonyms, Dīrgha-grīvah, Ati-jāgarah).

Medicinal Action: The flesh alleviates vāta and pitta. The bones are useful in obesity, dysuria, worms and urinary disorders, (AS, sūtra, 24).

References: CS, sūtra, 23, 15; NiS on SS, uttara, 58, 44; DN, 6, (See - Ānūpa-Varga).

Kravyādah

Refers to carnivorous animals such as the lion, tiger, etc. The meat-juice of such animals is useful in sprue (grahani). The regular use of it is beneficial in patients suffering from sprue, emaciation and haemorrhoids. The marrow of such animals is astringent, light, cold and relieves haemorrhages.

References: CS, sūtra, 25, 40; chikitsā, 15, 116; SS, sūtra, 45, 131.

Kṛshṇa-Matsyah

English - *A scale-fish*

Type : This is a fresh-water fish (Nādeya-matsya). (SS)

Description: This is a red-coloured scale fish with red eyes and a number of spikes (kaṇṭaka), (NiS on SS, sūtra, 46, 113).

Medicinal Action: The fat (vasā) is made use of in apatānaka, (SS, chikitsā, 5, 18). (See-Ānūpa-Varga).

Kṛtamālah

English - *Spotted Antelope,*

Type : Janghāla (SS)

Description: These are animals which move from place to place in groups, (NiS on SS, sūtra, 46, 54).

Kuḍya-kīṭakah

English - *Wall lizard*

Vernacular - *Kavadigaṇā,*
Karadikana (Chkp)

Type : This is a creature with a poisonous sting. (CS)

References: CS, śārīra, 8, 19.

Kukkuṭah

Synonyms: Tāmra-chūḍah, Dakshah, Śouṇḍah, Vishkirah, Kālagnah, Kṛkavākuh, Niyoddhā, Charaṇāyudhā.

English - *Red-spur fowl,*
Wild-fowl

Hindi - *Murgā*

Type : Vishkira (SS, CS).

Varieties: There is another variety named Jala-kukkuta which usually lives in or around water.

Medicinal Action:

The Flesh:

Guṇa : Unctous and heavy
(domesticated fowl).
Light (wild fowl)

Vīrya : Hot

The flesh of the domesticated fowl aggravates kapha, alleviates vāta, is an aphrodisiac, appetizing, nourishing, improves the voice and strengthens the sense organs.

The flesh of the wild fowl alleviates kapha and is a heart-tonic

References: AHr, sūtra, 6, 59; DN, 6; RN, 17.

Note:

1. The flesh is useful in eye-diseases, (AS, uttara, 19).

2. The eggs are used as collyrium in the eye-disease—Vraṇa-śukra. They are also used for removing flesh growths, (CS, sūtra, 37, 31).
3. A medicated ghee prepared from the eggs, etc. is used in diseases of the ears, nose, mouth, eyes and head, (CS, chikitsā, 26, 175).

Kulingah

English - Tree sparrow

Type : Pratuda (SS, CS)

Description: This is a kind of chaṭaka which lives in forests. It resembles the domesticated chaṭaka, but is black in colour. (NiS on SS, sūtra, 46, 67; AD on AHṛ, sūtra, 48-49).

ARH considers the kulinga to be a domesticated (gr̥ha) chaṭaka. (ibid). Chkp describes it as having a yellowish crown, (CS, chikitsā, 18, 148).

Medicinal Action:

The Flesh:

Rasa : Sweet

Guṇa : Unctous

It aggravates kapha and is an aphrodisiac.

References: (SS, sūtra, 46, 71; CS, chikitsā, 2, 2, 11).

Kulishah

English - Hatchet-fish

Vernacular - Kuḍiśa (Dalhaṇa)

Type : This is a marine-fish (SS)
(See - Ānūpa-Varga)

Kumbhīrah

Synonym: Nakrah

English - Gharial crocodile,
True Gavial.

Type : Pādina (SS),
Vārisa (CS)

Description: This is a large animal similar to Nakra, (ARH on AHṛ, sūtra, 6, 51).

Varieties: There are many varieties such as Ghaḍiyāla, Godhā, etc., (NiS on SS, sūtra, 46, 109).

Medicinal Action: The fat is considered to be bad for health, (CS, sūtra, 25, 39) (See - Ānūpa-Varga).

Kurangah

Synonyms: Bhedulāpatih, Chatuh-śṛṅgha (Dalhaṇa)

English - Indian Antelope, Roe Deer
Vernacular - Chaturanga, Medulī
(Dalhaṇa)

Type : Janghāla (SS),
Jāṅgala (CS)

Description: This animal has a charming and light gait and four antlers, (NiS on SS, sūtra, 46, 54; uttara, 39, 153; ARH on AHṛ, sūtra, 6, 43).

Medicinal Action: The meat-juice is useful in preventing abortions. It is generally beneficial to health.

References: SS, sūtra, 20, 5; CS, sarira, 8, 24.

Kurarah

English - Osprey

Vernacular - Kuralayi (Dalhaṇa)

Type : Prasaha (SS, CS),
Plava (SS).

Description: This is brownish-red in colour, and has a white crown. It grabs and eats fish. (ARH on AHṛ, sūtra, 48-49). It resembles the animal Chilli.

Medicinal Action: Its hairs are useful in dyspnoea, (CS, chikitsā, 17, 118).

Kuruvahākah

Synonyms: Kurukurukah (Dalhaṇa)

English - *A species of wild fowl.*

Type : Vishkira (SS)

Description: This is a white bird with a blue neck and a red crown, (ARH on AHṛ, sūtra, 6, 44).

Lākshā

Synonyms: Palankashā, Raktā, Dīptin, Kṛmijā, Jatuh, Kshtaghnī, Rangamātā, Alaktakā, Khadirakā, Druma-vyādhih, Palāśi, Gandhamādinī, Nīlā, Drava-rasā, Pittārih.

English - *Lac,*

Hindi - *Lākh; Lāhi,*

Persian - *Lāk,*

Marathi - *Lākh,*

Bengali - *Lāhā,*

Tamil - *Arakku*

Description: This is an animal product found generally on the sāla and palāśa trees, (SS, sūtra, 14, 34). It is a resin secreted by the insect *Laccifer lacca*.

Medicinal Action:

Rasa : Bitter, astringent and sweet

Guṇa : Unctous

Vīrya : Hot

It alleviates kapha and pitta, antidotes poison, purifies the blood, is auspicious and is useful in haemorrhages, worms, ulcers, hiccoughs, cough, fever, intermittent fever, herpes, injuries and skin diseases.

Note:

1. The powder is sprinkled over a wound to arrest bleeding, (AS, sūtra, 36).
2. It is one of the best drugs among styptics, (AS, sūtra, 13).

3. The powder is applied externally in certain skin diseases, (SS, chikitsa, 9, 10).

4. The decoction or extract is employed to prepare a medicated ghee or milk preparation which is useful in Kshata-kshīṇa (a traumatic disease), (CS, chikitsā, 11, 34).

References: SS, sūtra, 38, 64-65; 39, 6; DN, 3, 82-83; RN, 6, 142-143; BP, pūrva, 6, 2.

Latvā

Synonym: Phenjātakah

English - *Pied flycatcher. A species of house-sparrow*

Vernacular - *Lāt (Dalhaṇa)*

Type : Pratuda (SS, CS)

Description: This bird has a reddish tail and belly. However, some authorities consider it to be a variety of Bharadvāja, (NiS on SS, sūtra, 46, 67; ARH on AHṛ, sūtra, 6, 46).

Lavah

Synonyms: Lāvah, Chitra-dehah, Chitrayodhi.

English - *Bustard Quail, Common quail*

Hindi - *Lavā*

Type : Vishkira (SS, CS)

Varieties: There are four kinds of Lāva birds: (1) Pāmśulah; (2) Goura-kah; (3) Pounḍrakah and (4) Darbhah.

Medicinal Action:

The Flesh:

Rasa - *Slightly sweet and astringent*

Guṇa - *Unctous and light, dry (Gourakah), slightly light (Pounḍrakah)*

Vīrya - *Sweet Hot (Pāmśulah)*

The flesh alleviates all three doshas, is a heart-tonic, constipative, appetizing and is useful in fevers.

The flesh of the Pāmsūla aggravates kapha and alleviates vāta, that of the Gouraka alleviates kapha and vāta and is appetizing, that of the Pounḍraka aggravates pitta and alleviates kapha and vāta, and that of the Darbha relieves haemorrhages and heart diseases. (DN, 6. 461-463).

Note: The flesh has properties similar to that of Śaśa (AS, sūtra, 7); and is beneficial to health, (CS, sūtra, 25, 38).

References: CS, sūtra, 6, 25; 27, 47, 69; SS, 46, 60; DN, 6, 460; RN, 19; NiS on SS, sūtra, 46, 60.

Lopākah

Synonyms: Lāngalakah, Lomaśah, Mahālāngulah (Chkp).

English - Fox
Hindi - Lomadi,
Vernacular - Lāngalaka (Dalhaṇa)

Type : Prasaha (CS)

Description: This is a kind of Śṛgāla, resembling the animal Jambuka, and is hairy. (NiS on SS, sūtra, 46, 78; Chkp on CS, sūtra, 27, 36; ARH on AHṛ, sūtra, 6, 48-49).

Medicinal Action: The flesh is useful in wasting diseases such as tuberculosis. It is also useful in pravāhika (dysentery).

References: CS, chikitsā, 8, 152; 19, 38; SS, chikitsā, 8, 37; 25, 25; SS, sūtra, 46, 78.

Madguh

Synonym: Jala-kākah

English - Small cormorant

Type : Plava (SS),
Ambuchāri (CS)

References: NiS on SS, sūtra, 46, 105; ARH on AHṛ, sūtra, 6, 51, (See - Ānūpa-Varga).

Madhūcchishṭā

Synonyms: Sikthakam, Madhukam, Madhuśesham, Madanakam, Mākshika-śrayam, Pitarāgam, Drāvakam.

English - Bee's wax
Hindi - Bhom

Medicinal Action:

Rasa : Sweet
Guna : Unctous, slimy and soft

It is a purgative, aids healing of fractured bones, is auspicious and is useful in skin diseases, pruritus and gout. It is externally applied in cracks and fissures.

References: SS, chikitsā, 20, 18; 25, 40; DN, 3, 119-120; RN, 13, 173-175.

Madhuh

Synonyms: Mākshikam, Kusumāsavam, Sāragham, Pushpa-rāsam, Pavit-ram, Pitṛyam.

English - Honey
Hindi - Madhu

Varieties: There are eight varieties of honey:

1. Bhrāmara—This honey which is collected by small bees is whitish in colour, resembling sphatika (alum).
2. Kshaudra—This honey which is gathered by small tawny coloured bees is tawny in colour.
3. Paittika—This honey is collected by black bees, the size of mosquitoes, which have a very painful sting, and are found in the hollows of trees. This honey bears a resemblance to ghee.
4. Cchatraka—This honey is collected by bees usually found in the Himalayan

region, which are tawny and yellowish in colour, and build a hive which is umbrella shaped. This honey is yellowish in colour.

5. Arghya—This honey which is collected by yellow coloured bees which have a sharp mouth and resemble beetles, is also tawny in colour.
6. Auddālaka—This honey is gathered by small, tawny-coloured bees which build a hive within ant-hills. This honey is gold coloured.
7. Dāla—This is the nectar which is secreted by certain flowers, and is found deposited on the upper layer of leaves. This is reddish in colour.
8. Mākshika—This honey is gathered by big brownish, bees, and bears a resemblance to (gingelly) oil. This honey is the best of all the varieties.

Medicinal Action:

Rasa : Sweet
 Anu-rasa : Astringent
 Guṇa : Dry, light, viśada (and slimy)
 Vīrya : Cold

It alleviates kapha and pitta, antidotes poison, is emaciating, constipative, appetizing, refreshing, an aphrodisiac, beneficial to the voice, eye-sight, and complexion, increases intelligence, is a heart-tonic, promotes healing of wounds, penetrates into and cleanses all the minute channels of the body, and is useful in skin-diseases, cough, haemorrhoids, haemorrhages, urinary disorders (including diabetes), worms, obesity, thirst, vomiting, dyspnoea, hiccough, diarrhoea, burning pains and traumatic diseases.

Fresh and newly prepared honey relieves urinary disorders and vomiting; old honey is excessively emaciating, is constipative and is useful in obesity and medo-roga.

Mākshika honey is excessively light, dry, and is useful in jaundice, haemorrhoids, dyspnoea, cough and wasting diseases.

Kshaudra honey is cold, light, slimy, emaciating, alleviates vāta and pitta, and is especially useful in eye-diseases and urinary disorders.

Bhrāmara is heavy, dry, slimy, excessively sweet, engenders obstruction of the body channels, and causes heaviness of the body and urinary disorders.

Paittika honey is dry, hot, aggravates vāta, relieves dysuria and urinary disorders and causes haemorrhages and burning pains.

Cchātraka is slimy, heavy, cold, sweet in vipāka, is refreshing, antidotes poison, and is useful in worms, leucoderma, haemorrhages, urinary disorders, vertigo, syncope and thirst.

Arghya honey is astringent, bitter, has a pungent vipāka, is strengthening, nourishing, alleviates kapha and pitta, and is very useful in eye diseases.

Auddālaka honey is astringent, sour, hot, pungent in vipāka, aggravates pitta, antidotes poison, is appetizing, and is useful in skin diseases and hoarseness.

Dāla honey is sweet, pungent, astringent, sour, light, dry, heavy in weight, aggravates pitta, alleviates kapha and relieves vomiting and urinary disorders.

Honey should not be taken along with hot substances and by patients suffering from excess of heat in the system. Neither must it be taken in too large a quantity. It should not be taken with salt or with ghee in equal quantity.

References: SS, sūtra, 45, 132-147; CS, sūtra, 27, 243-249; DN, 6; BP, pūrva, 6, 22; RN, 14; Āyurveda Sowkhyam.

Note:

1. Honey alleviates kapha and pitta and is useful in haemorrhages, (CS, sūtra, 4, 18; 25, 40).
2. Honey is also used as gaṇḍūsha (gargle) in some diseases of the mouth, (Ahr, sūtra, 22, 8).

Mahishah

Synonyms: Kāsarah, Śrngī, Lulāyakah, Krshnah, Vishāṇī, Kalushah, Daśī, Pīna-skandhah, Rajasvalah, Mandagamanā, Mahākshīrī, Krodhī, Aśva-śatruh.

English - Buffalo

Type : Kūlachara (SS),
Anūpa (CS)

Medicinal Action:

The Meat:

Rasa : Bitter and sweet
Guṇa : Unctous and heavy
Virya : Hot

It alleviates pitta, is strengthening, refreshing, an aphrodisiac, and brings about lethargy, (DN, 6; RN, 19).

The Milk:

Rasa : Sweet
Guṇa : Heavy and unctous
Virya : Cold

It alleviates pitta, destroys the appetite, engenders lethargy, obstructs the channels of the body, is strengthening, an aphrodisiac, is nourishing and relieves burning pains and diseases of impure blood, (CS, sūtra, 27, 219; RN, 15; DN, 6).

The Curd:

Rasa : Sweet
Guṇa : Unctous
Virya : Cold

It aggravates kapha, is strengthening, an aphrodisiac, causes obstruction of body channels, relieves haemorrhages and increases Meda raga, (DN, 6, 193; RN, 15).

The Ghee:

Rasa : Sweet
Guṇa : Heavy
Virya : Cold

It aggravates kapha, alleviates vata and pitta, is appetizing, strength-giving, enhances complexion, memory and eye sight and is useful in haemorrhages, sprue and haemorrhoids, (DN, 6, 147; RN, 15).

The Urine:

Rasa : Pungent
Virya : Hot

It is useful in haemorrhoids, ascites, abdominal colic and tumours, swellings, skin diseases, urinary disorders, flatulence, anaemia and eye-diseases, (DN, 16, 492; RN, 15).

Note:

1. The milk increases breast-milk in lactating mothers, (CS, sūtra, 46, 98).
2. The spleen and liver are useful in certain eye-diseases, (AS, uttara, 16).
3. The fat is least beneficial when compared to the fat of other aquatic animals, (CS, sūtra, 25, 39).
4. The milk is very useful in sleeplessness, (CS, sūtra, 25, 40).

Mātr-nindakah

Synonyms: Priyātmakah (NiS).

English - Common Babbler
Vernacular - Putra-ranjaka (Dalhana)

Type : Pratuda (SS)

Matsyah

Synonyms: Mīnah, Kaṇṭhī, Śakulī

English - Fish
Hindi - Macchali

Medicinal Action:

Rasa : Sweet
Guṇa : Unctous and heavy
Virya : Hot

It alleviates vāta, is an aphrodisiac, strength-giving, and is beneficial in persons accustomed to regular exercise, and coitus, and having strong digestive powers.

References: CS, sūtra, 27, 82; SS, sūtra, 46, 118; DN, 6, 410; RN, 17. (See - Ānūpa-Varga)

Mayūrah

Synonyms: Nartakah, Barhī, Nīla-kanthah, Śikhī, Dvajī, Meghārāvah, Kalāpī, Śikhāṇḍī, Chitra-piccha-kah, Prachalākī, Śuklāpāngah, Śikhāvalah, Kekā, Bhujanga-bhojī.

English - Pea-fowl, Peacock

Type : Vishkira (SS)

Medicinal Action:

The Flesh:

Rasa : Sweet, astringent and salty
Guṇa : Unctous

It alleviates vāta, strengthens digestion and the sense-organs, is nourishing, an aphrodisiac, enhances intelligence and the voice, and is useful in skin diseases and anorexia.

Note:

1. The ash of the feathers is used for fumigation in cough and dyspnoea.
2. The fat is used as collyrium in certain eye-diseases, (AS, uttara, 16).

References: CS, sūtra, 27, 65; SS, sūtra, 46, 64-65; DN, 6, 445-446; RN, 19.

Meshah

Synonyms: Urabhrah, Bheḍah, Menḍhrah, Huḍah, Uraṇah, Avikah, Aeḍakah, Pṛshthā-śrngakah, Ūrṇāyū, Romaśah, Barbukah.

English - Sheep

Type : Grāmya (SS)

Medicinal Action:

The Flesh :

Rasa : Sweet,
Guṇa : Unctous and heavy
Vīrya : Hot

It alleviates all three doshas, and is abhishyandi and nourishing, (CS, sūtra, 27, 62; AHṛ, sūtra, 6, 64; DN, 6, 388; RN, 17; 408).

The Milk:

Rasa : Sweet and salty
Guṇa : Unctous and heavy
Vīrya : Hot

It alleviates kapha and pitta, is refreshing, an aphrodisiac, harmful to the heart, and is useful in dry cough and diseases of vāta. It aggravates hiccough and dyspnoea, (SS, sūtra, 45, 54-55; CS, sūtra, 27, 223; BP, pūrva, 6, 14).

The Curd:

Rasa : Sweet
Guṇa : Heavy and unctous
Vipāka : Sweet

It aggravates kapha and pitta (also vāta according to SS), aggravates gout and causes extensive coating on the body channels, (SS, sūtra, 45, 71-72; AMD, page 23).

The Ghee: It alleviates kapha and vāta, does not aggravate pitta, strengthens the bones, enhances the eye-sight and is useful in urinary calculi, menstrual disorders, wasting diseases and tremors, (SS, sūtra, 45, 101; DN, 6, 18).

The Urine:

Rasa : Bitter, pungent and alkaline
Vīrya : Hot

It alleviates vāta and is beneficial in cough, dyspnoea, enlargement of spleen, ascites, wasting and constipation, (SS, sūtra, 45, 224).

Note:

1. Its flesh is particularly beneficial in Śarad-ṛtu, (CS, sūtra, 6, 43).
2. The hairs when burnt into ashes are administered with honey in hiccough, (SS, uttara, 50, 20).
3. The horns are used as collyrium in certain eye-diseases, (AS, sūtra, 8, 96).
4. The milk excessively aggravates kapha and pitta, and is generally considered undesirable, (CS, sūtra, 25, 39-40).
5. The ghee is prohibited in patients with heart-diseases, (AS, sūtra, 13).
6. The mere smelling of the urine relieves hiccoughs, (SS, uttara, 50, 22).

Mrgairvārukah

Vernacular - *Harinadrava (Dalhana)*

Type : Guhāsaya (SS)

Description: This is a jackal-like animal feeding on deer, (NiS on SS, sūtra, 46, 71).

Mrga-mātrikā

English - *Red Deer, Female Roe Deer*

Vernacular - *Medālī (Dalhana)*

Type : Janghāla (SS),
Jāngala (CS).

Description: This is a variety of deer with a large abdomen, but small in size, resembling a rabbit, (NiS on SS, sūtra, 46, 54; Chkp on CS, sūtra, 27, 45; ARH on AHṛ, sūtra, 6, 43).

Medicinal Action: The flesh is cold in vīrya, alleviates pitta and is useful in haemorrhages, wasting, diseases, cough, dyspnoea, hiccoughs and anorexia.

References: SS, sūtra, 20, 5; 46, 58.

Mrga-Priyakah

Synonym: Gonasah (Dalhana).

English - *Boa*

Type : Bileśaya (SS)

Medicinal Action: The flesh is useful in diseases of deranged vāta, (SS, sūtra, 46, 78-82).

Muktā

Synonyms: Mouktikam, Śuktijam, Sphoṭa-śuktijam, Bhūshānarhata-mam, Soumyā, Tāram, Nīrajam, Indu-ratnam, Bindu-phalam, Śukla-maṇih, Śaśa-priyam.

English - *Pearl*

Hindi - *Moti*

Description: Pearls, which are of good quality, are whitish, light, lustrous, big in size, rounded, glossy, clear and smooth. They are not affected even if rubbed with salts, kshāras and husks in a vessel filled with cows' urine, (RRS, 4, 13-16; RN, 13, 67-72).

Medicinal Action:

Rasa : Sweet

Guṇa : Light

Vīrya : Cold

It alleviates kapha and pitta, antidotes poison, is appetizing, strengthening, an aphrodisiac, nourishing, a laxative and is useful in tuberculosis, eye-diseases, burning pains, diseases of the mouth, cough, dyspnoea and indigestion, (RRS, 4, 13-16; DN, 6, 62-63).

Note:

1. A paste of pearl is applied in bites of poisonous animals to relieve pricking pains, fever and burning, (CS, chikitsā, 23, 199).

2. It is applied externally with ghee in herpes, (CS, chikitsā, 21, 81).

Śodhana: Mukṭā is to be powdered well and subjected to svedana (boiling) in the juice of Jayanti for three hours, (RRS, 4, 60).

Māraṇa: Purified Mukṭā is triturated with sulphur, realgar, orpiment and juice of Lakucha, and then subjected to heat by (gaja) puta. This process is to be repeated eight times, (ibid, 64).

Muralah

Type : This is a fresh-water fish (SS)

Medicinal Action: The flesh aggravates kapha, is an aphrodisiac, is nourishing and increases breast-milk, (SS, sūtra, 46, 116). (See-Ānūpa-Varga).

Nakrah

Synonyms: Kumbhīrah, Gala-grāhah, Mahābalah, (RN, 19, 13).

Marathi - Magar
Vernacular - Ghaḍiyāla (Dalhaṇa)

Description: This is a kind of fish which is long and rope-like, (NiS on SS, chikitsā, 26, 26; ARH on AHṛ, sūtra, 6, 52).

Medicinal Action: The semen (retas) and eggs of this animal are exceedingly aphrodisiac, (CS, sūtra, 25, 40; chikitsā, 2, 2, 28).

Nakulah

Synonyms: Sarpārih, Sūchiradanah, Lohitānanah, (RN, 19, 4).

English - Mongoose

Type : Bileśaya (SS),
Bhūmiśaya (CS).

Its bite is poisonous (CS)

Medicinal Action:

1. Its flesh is useful in wasting diseases, (SS, uttara, 41, 36).
2. A medicated oil prepared from the bile is used both internally and externally for massage in epilepsy, (SS, uttara, 61, 24).
3. The bile is used as errhine and collyrium to antidote poisoning by haritāla, (AS, uttara, 40).
4. The bile is also considered to be auspicious and is used in graha-chikitsā, (SS, uttara, 60, 40).

Nandi-vāralakah

Vernacular - Samudra-śimbāka,
(NiS on SS, sūtra, 46, 118)

Type : This is a kind of marine fish, (SS) (See-Ānūpa-Varga).

Naptṛkah

English - A species of sparrow
Vernacular - Ghuḍuruka (Dalhaṇa)

Type : Vishkira (SS)

Description: This is a small bird with a whitish belly, which utters a 'hoo, hoo' sound, (NiS on SS, sūtra, 46, 59).

Nyankuh

English - Hog Deer
Hindi - Sāmbar
Vernacular - Nyanguṇa (Dalhaṇa)

Type : Kūlachara (SS),
Anūpa (CS).

Description: This is a kind of deer which resembles kuranga and has many large, formidable antlers, (Chkp on CS, sūtra, 27, 39; ARH on AHṛ, sūtra, 6, 50).

Medicinal Action: The flesh is light, slightly aggravates vāta, alleviates kapha and pitta, and is strengthening, (DN).

Odrah

Synonyms:

English - Otter
Vernacular - Odana (Dalhaṇa)

Type : Kūlachara (SS)

Description: This is a kind of cat (biḍāla) living in water, (NiS on SS, sūtra, 46, 94).

Pāka-matsyāh

English - Sucking-fish

Type : This is a marine fish (SS)

Medicinal Action: The bite of this fish causes diseases of vitiated pitta.

References: SS, sūtra, 46, 118; kalpa, 8, 8-12; AS, uttara, 43.

Pārāvatah

Synonyms: Rakta-netrah, Nīlāṅgah, Kapotakah, Gṛha-swāmī, Vararohan, Ghurghurāgah, Kalaravah, Madana-kākuravah, Kāmī, Vāgvilāsī, Kanthīravah.

English - Pigeon
Hindi - Parevā

Type : Pratuda (SS)

Medicinal Action:

The Flesh:

Rasa : Astringent and sweet
Guna : Heavy, unctous and viśada
Vīrya : Cold
Vipāka : Sweet

It alleviates pitta, antidotes gara-visha, is an aphrodisiac, is strengthening and relieves haemorrhages.

Note:

1. The dung is useful in haemoptysis and in dissolving blood clots, (CS, chikitsā, 4, 72).
2. A medicated ghee prepared from the flesh of this bird is useful in tuberculosis, (AS, chikitsā, 7).

References: SS, sūtra, 46, 70; AS, sūtra, 7, 90; uttara, 40; DN, 6, 56-60; RN, 17, 30; 19, 28.

Parṇamṛgah

Refers to an animal which dwells on trees. Such animals according to SS are:

1. Avakuśa (cow-tailed monkey)
2. Madgu-mūshika (arboreal rodents)
3. Pūtiḡhāsa (civet cat)
4. Vānara (Indian monkey)
5. Vṛksha-śāyika.

Medicinal Action: The flesh of these animals has certain common properties.

Rasa : Sweet
Guṇa : Heavy

It is an aphrodisiac, laxative, diuretic, beneficial to the eyes, and is useful in cough, haemorrhoids, dyspnoea, and wasting diseases.

References: SS, sūtra, 46, 76.

Pāthiṇah

English - Boal
Vernacular - Voyāla (Dalhaṇa)

Type : This is a fresh-water riverine fish (SS)

Description: This fish is long and is devoid of scales, (NiS on SS, sūtra, 46, 113). It is black in colour with a silvery abdomen and groups of spikes, (ARH on AHṛ, sūtra, 6, 52).

Medicinal Action: The flesh aggravates kapha, is an aphrodisiac, and is contra-indicated in skin diseases and haemorrhages, (SS, sūtra, 46, 116).

Plavah

English - Pelican
Vernacular - Sagaḍa (Dalhaṇa)

Type : Plava (SS),
Ambuchārī (SS)

Description: This is a big bird with a sack-shaped neck. (NiS on SS, sūtra, 46, 105; ARH on AHr, sūtra, 6, 51). (See Ānūpa Varga).

Prasaha-Varga

A group of animals which grab and tear their food, they may be either carnivorous or herbivorous. CS includes the following animals under this category:

1. Aśva (horse)
2. Aśvatara (mule)
3. Babhru (large brown mongoose)
4. Bhāsa (bearded vulture)
5. Chāsha (blue jay)
6. Dhūmika (owlet)
7. Dvīpin (panther)
8. Go (cow)
9. Gṛdhra (vulture)
10. Jambūka (jackal)
11. Khara (ass)
12. Kulinga (sparrow hawk)
13. Kurara (osprey)
14. Lopāka (fox)
15. Madhuhā (honey buzzard)
16. Mārjāra (cat)
17. Mūshika (mouse)
18. Rksha (bear)

19. Śaśaghna (golden eagle)
20. Simha (lion)
21. Śyena (hawk)
22. Tarakshu (hyena)
23. Ulūka (owl)
24. Ushtra (camel)
25. Vānara (monkey)
26. Vāntāda (dog)
27. Vāyasa (crow)
28. Vṛka (wolf)
29. Vyāghra (tiger)

(CS, sūtra, 27, 35-36). SS gives a slightly different and smaller list:

1. Bhāsa (bearded vulture)
2. Chāsha (blue jay)
3. Chilli (kite)
4. Gṛdhra (vulture)
5. Kāka (crow)
6. Kanka (heron)
7. Kurara (osprey)
8. Śaśaghāti (golden eagle)
9. Śyena (hawk)
10. Ulūka (owl)

Medicinal Action:

The Flesh:

Rasa : Sweet
Guṇa : Heavy and unctous
Vīrya : Hot

It alleviates vāta, aggravates kapha and pitta, is strength-giving, nourishing and an aphrodisiac. It is useful in persons accustomed to regular exercise and who have good digestive powers. The meat of carnivorous animals is useful in chronic haemorrhoids, sprue and wasting diseases (tuberculosis), (CS, sūtra, 27, 56-58; SS, sūtra, 46, 75).

Pratuda-Varga

This group comprises birds which peck and gobble their food. The birds which CS includes in this group are:

1. Angāra-chūḍaka (black bulbul)
2. Atyūka (red-vented bulbul)
3. Babhru-vaṭahā (brown tree-pie)
4. Bhṛngarāja (shrike)
5. Chaṭaka (tree sparrow)
6. Chiraṭi (babbler)
7. Diṇḍimānaka (toucan)
8. Dundubhi (grey hornbill)
9. Gopaputra (cow-bird)
10. Jaṭi (Indian hoopoe)
11. Jivajīvaka (peacock pheasant)
12. Kairāta (red-faced malkoha)
13. Kalavinka (house sparrow)
14. Kanku (blossom-headed parakeet)
15. Kapota (spotted pigeon)
16. Kokila (Indian koel)
17. Kojashṭhi (green-bill coucal)
18. Kulingaka
19. Laṭṭaśāka (paradise flycatcher)
20. Laṭvā (pied flycatcher)
21. Loha-prshṭa (kingfisher)
22. Pākkāra (green barbet)
23. Pāṇḍanavika (wood pigeon)
24. Pārāvata (pigeon)
25. Priyātmaja (Indian babbler)
26. Sāranga (ringneck parakeet)
27. Śārikā (myna)
28. Śatapatra
29. Śuka (green parakeet)
30. Yashtika (sunbird)

(CS, sūtra, 27, 50-52). SS mentions the following birds:

1. Anna-dūshaka
2. Bhedāsī (small parakeet)
3. Bhṛngarāja (shrike)
4. Dātyūha (gallinule)
5. Diṇḍimānaka (toucan)
6. Giriśa (mountain quail)
7. Gokshedāka
8. Gṛha-kulinga (house sparrow)
9. Harita (yellowish-green pigeon)
10. Kapota (wood pigeon)
11. Khanjarīṭaka (wagtail)
12. Koyashṭhikā (green-bill coucal)
13. Kulinga (tree sparrow)
14. Laṭvā
15. Māṭṛnindaka (common babbler)
16. Parabhr̥ta (indian koel)
17. Pārāvata (pigeon)
18. Sārikā (myna)
19. Śata-patraka
20. Sugr̥hī (common weaver bird)
21. Śuka (green parakeet)
22. Valgulī (grey tit). (SS, sūtra, 46, 67).

Medicinal Action:

The Flesh:

Rasa	: Sweet and astringent
Guṇa	: Light and dry
Vīrya	: Cold

It aggravates vāta, alleviates kapha and pitta (according to SS), diminishes the amount of urine and is constipative, (SS, sūtra, 46, 68; CS, sūtra, 27).

Prshatah

English	- Spotted Deer
Vernacular	- Chittala, Chītala (Dalhāṇa)

Type : Jāṅghāla (SS),
Jāṅghāla (CS).

Description: This is a kind of deer (harīṇa) which is covered all over with dots, (Chkp on CS, kalpa, 4, 12; NiS on SS, sūtra, 46, 54).

Medicinal Action: The meat-juice is useful in patients suffering from chronic or continued fever. Its eyes are reported to be affected by gazing at poisoned food.

References: CS, chikitsā, 3, 191; SS, kalpa, 1, 33; uttara, 61, 24-25.

Pūṭighāsaḥ

Vernacular - Karpūṛaka (Dalhāṇa)
English - Civet Cat

Type : This is a tree-dwelling animal (Paṇḍa-mṛga) (SS)

Description: This is a kind of cat which lives on trees and has fragrant testes, (NiS on SS, sūtra, 46, 76).

Rājīvah

English - Mullet

Type : This is a kind of fish which is both marine and riverine. (SS).

Description: This is a broad fish which has the lustre of a diamond (NiS on SS, sūtra, 46, 118; ARH on AHr, sūtra, 6, 52). (See - Ānūpa-Varga).

Rāmah

English - Kashmir Red Deer

Type : Jāṅghāla (CS)

Description: This is a big deer, seen in the Himālayan regions, (Chkp on CS, sūtra, 27, 45).

Rohitah

English - Red Deer

Type : This is an animal frequenting river banks, (SS).

Description: This is a red coloured deer. (NiS on SS, chikitsā, 29, 13). (See - Ānūpa-Varga).

Rohitah

English - Red Carp

Type : This is a riverine fish, (SS).

Description: This is a red coloured fish with a black dorsal region and thick scales. It feeds on moss and other fish. (NiS on SS, sūtra, 46, 113; ARH on AHr, sūtra, 6, 52).

Medicinal Action:

The Flesh:

Rasa - Astringent and sweet
Guṇa - Light

It alleviates vāta, slightly aggravates pitta, is appetizing, an aphrodisiac, strength-giving, enhances vision and complexion and is useful in hemiplegia.

Note: The flesh is used as collyrium, (AS, uttara, 12).

References: CS, sūtra, 27, 83; SS, sūtra, 46, 115).

Ruruh

Synonyms: Viśhāṇikah, Rohiṇah, Aśvagandah, Chamarī, Chāru-darśanah (DN).

English - A species of deer.

Type : Kūlachara (SS),
Anūpa (CS)

Description: This is a kind of deer which resembles Śambhara, and has many formidable antlers which it sheds in Śarad ṛtu. (NiS on SS, sūtra, 46, 94; ARH on AHṛ, sūtra, 6, 50).

Medicinal Action:

The Flesh:

Rasa : Sweet
Anu-rasa : Astringent
Guṇa : Heavy and unctous

It alleviates vāta and pitta, is aphrodisiac, strength giving and difficult to digest, (SS, sūtra, 46, 99; RN, 17, 9). The bile is useful in eye-diseases, (AS, uttara, 16).

Sahasra-damshṭrah

English - A species of fish.

Type : This is a riverine fish, (SS).

Description: This is a bigger variety of Pāṭhīna, (NiS on SS, sūtra, 46, 113). (See - Pāṭhīnah).

Śallakah

Synonyms: Śalūlah, Śūchinākharā, (DN, 6); Vajra-śalyakah.

English - Porcupine
Vernacular - Sālā, Śallaka (Dalhaṇa)

Type : Bileśaya (SS),
Bhūmiśaya (CS).

Description: This animal resembles the Godhā and has diamond-like scales, (NiS on SS, sūtra, 46, 78).

Medicinal Action:

The Flesh:

Rasa : Sweet and sour
Vipāka : Pungent

It alleviates all three doshas, purifies the blood, and is useful in wasting diseases, swellings, cough and dyspnoea.

Note:

1. Its bile, urine, hairs, nails, etc. are used as errhine in insanity of the vāta and kapha types, (CS, chikitsā, 9, 74-75).
2. The hairs are used for fumigation purposes, (SS, uttara, 60, 38).

References: CS, sūtra, 27, 71; DN, 6.

Śambharah

English - Sambhar
Hindi - Sāmbhar, Bārahsingā

Type : Jāngala (CS)

Description: This animal has many formidable antlers, (ARH on AHṛ, sūtra, 6, 43).

Medicinal Action: The meat-juice is useful in preventing abortion, (CS, śārīra, 8, 24).

Śambhūkah

Synonyms: Kshullakah, Kshudra-śankhuh, Nakha-śankhakah (DN, 3, 246).

Vernacular - Śāṅkhulā (Dalhaṇa)

Type : Kośastha (SS)

Medicinal Action:

Rasa : Pungent and bitter.

It is appetizing and relieves abdominal colic, (DN).

Śankhah

Synonyms: Vāri-bhavah, Karbuh, Dīrghanisvanah, Susvarah, Dīrghanādah, Dhavalah, Śrī-vibhūshaṇah, Kuṭīlah, Kambu-pūtah.

English - Conch

Medicinal Action:

Rasa : Sweet and pungent
Vipāka : Pungent

It alleviates pitta, antidotes poison, is strengthening, nourishing, enhances eye-sight and is useful in abdominal colic, pariṇāma-śūla, abdominal tumours, dyspnoea, haemorrhages, burning pains, excessive thirst, and anaemia.

Note: It is applied externally in herpes, (CS, chikitsā, 21, 82).

References: CS, chikitsā, 4, 73; 19, 82; SS, uttara, 44, 21; DN, 3, 179-180; RN, 13, 243-245.

Śarabhah

Synonyms: Chitra-kāyah, Upa-vyāghrah, Mrgāntakah, Śūrah, Chitra-vyāghrah, Kshudra-śārdūlah, (DN, 6, 393; RN, 19, 411).

English - Kashmir Deer

Type : Jāghāla (SS),
Jāngala (CS).

Description: This is a eight-footed animal which is as big as a camel, and has big antlers, and is found in Kashmir. (NiS on SS, sūtra, 46, 54; uttara, 39, 153; ARH on AHr, sūtra, 6, 43).

Medicinal Action: The flesh is used as an article of diet.

Sārangah

English - A kind of deer

Description: This is a white deer (Gouraharīṇa). (NiS on SS, sūtra, 46, 333).

Medicinal Action: The flesh is sweet, light, unctous and aphrodisiac, (RN, 17, 14).

Sārāpadah

English - Stork

Type : Vishkira (CS)

Description: This bird has a graceful gait and resembles Kankah, (ARH on AHr, sūtra, 6, 44-45).

Śarārī-mukhah

English - Darter or Snake bird

Vernacular - Girgarāṭī (Ḍalhaṇa).

Type : Plava (SS)

Description: This bird has the colour of the plant Khadira, (NiS on SS, sūtra, 46, 105).

Sārikā

Synonyms: Gorāṭikā, Gourikā, Kalahapriyā, Medhāvinī, Madhurālāpā, Kavari, Kutsitāngī, Kashkalāngi, Pītapādā, Ujjvalākshī, Rakta-chanchuh.

English - Common Mynah

Type : Pratuda (SS, CS)

Medicinal Action: The flesh is unctous, aggravates vāta, is an aphrodisiac, nourishing, a brain-tonic and rejuvenative.

References: DN, 6, 452-453; RN, 19, 472.

Śaśah

English - Rabbit or Hare

Hindi - Khargoś, Kharhā,

Type : Bileśaya (SS),
Jāngala (CS).

Medicinal Action:**The Flesh:**

Rasa	: Sweet and astringent
Guṇa	: Light, dry and viśada
Vīrya	: Cold
Vipāka	: Pungent

It alleviates kapha and pitta, slightly aggravates vāta, is appetizing and is useful in cough and dyspnoea.

Note:

1. The meat-juice is administered with vāstuka in haemorrhages with constipation, (CS, chikitsā. 4, 49).
2. The bile is used in eye-diseases, (AS, uttara, 16, 20).
3. A medicated ghee prepared from the meat is useful in diseases of the head, ears, eyes, nose and mouth, (CS, chikitsā, 26, 175).

References: CS, sūtra, 27, 76; SS, sūtra, 46, 80; RN, 17, 15.

Śaśaghātī

English	- Golden Eagle
Hindi	- Śīkrā
Vernacular	- Śaśagnī (Dalhana); Pāñji (Chkp)

Type : Prasaha (SS, CS)

Description: This is an eagle with great talons, which is capable of carrying off rabbits, (NiS on SS, sūtra, 46, 74).

Śīsumārah

English	- Dolphin
Vernacular	- Phāṇita (Dalhana)

Type : Pādina (SS),
Vāriśa (CS).

Varieties: There are two kinds of śīsumāra, one that is roundish, and the other long. The latter kind is known as phāṇita, (NiS on SS, sūtra, 46, 109).

Sṛmarah

Synonyms: Mohā-śūkarah, Vana turangah

English - Indian wild boar

Type : Kūlachara (SS),
Anūpa (CS).

Medicinal Action:**The Flesh:**

Anu-rasa	: Astringent
Guṇa	: Heavy

The flesh alleviates vāta and pitta and is an aphrodisiac, (SS, sūtra, 46, 101; Chkp on CS, sūtra, 27, 39).

Sugrha

English	- Common Weaver bird.
Vernacular	- Vayā (Dalhana)

Type : Pratuda (SS)

Description: The bird has a yellow crown, (NiS on SS, sūtra, 46, 67).

Śukah

Synonyms: Kirah, Rakta-mukhah, Medhāvī, Priya-darśanah, Rata-tuṇḍah, Majju-pāṭhakah.

English	- Green Parakeet
Hindi	- Totā

Type : Pratuda (SS, CS)

Varieties: There is a bigger species known as Rāja-śukah.

Synonyms: Śatapatrah, Nṛpa-priyah

Medicinal Action:**The Flesh:**

Rasa	: Astringent
Guṇa	: Dry and light
Vīrya	: Cold
Vipāka	: Sour

The flesh aggravates vāta, is strength-giving, an aphrodisiac, nourishing, constipative, appetizing and is useful in wasting diseases, cough and tuberculosis, (CS, sūtra, 27, 74; AHr, sūtra, 3, 40; DN, 6, 450-451; RN, 19, 471).

Śuklākshah

English - *White-eyed Pochard*

Type : Plava (SS)

Descriptions: This is a species of swan (hamsa) which has a dirty (coloured) beak and limbs, (NiS on SS, sūtra, 46, 105).

Śuktiḥ

Synonyms: Mouktika-prasavā, Ankadhā, Muktmātā, Abdi-maṇḍūkī.

English - *Oyster, Pearl oyster, Pearl Mussel.*

Type : Kośastha (SS),
Vāriśa (CS).

Medicinal Action:

Rasa	: Pungent and sweet
Guṇa	: Unctous

It is appetizing, digestive, strength-giving, antidotes poison and is useful in dyspnoea, heart-diseases, abdominal colic and abdominal tumours.

Note: It is subjected to śodhana by processes similar to that for Śankha, and māraṇa by those carried out for Bhallūka, (AP, 2, 330).

References: AP, 2, 326-329, RN, 13, 12-13.

Śvānakah

Synonyms: Kukkurah, Sārameyah, Śunah, Bhūstrah, Vāntādah, Vakra-langalakah, Bhallūkah, Ratri-jāgarah, Vṛkari.

English - *Dog*

Hindi - *Kutta*

Type : Prasaha (CS).

This is a creature with a poisonous bite (CS).

Medicinal Action: The flesh is hot and alleviates vāta (DN, 6, 442; RN, 19, 464).

Śvāvit

Synonyms: Sehikā, Śalūlah, Śalālī

English - *Pangolin, Hedgehog*

Vernacular - *Sihay (Dalhaṇa)*

Type : Bileśaya (SS),
Bhūmiśaya (CS)

Description: This animal has needle-shaped hairs, (NiS on SS, sūtra, 46, 78; ARH on AHr, sūtra, 6, 47).

Medicinal Action: The flesh alleviates all three doshas, purifies the blood and is useful in dyspnoea, cough and wasting diseases, (DN, 6, 37-38). The flesh is useful in cough of the vāta type, (CS, chikitsā, 17, 112).

Śvadamshtṛah

English - *Mouse Deer.*

Hindi - *Chittā,*

Vernacular - *Karkaṭaka (Dalhaṇa).*

Type : Janghāla (SS),
Jāngala (CS).

Description: A ferocious animal with four fangs, (NiS on SS, sūtra, 46, 54; 20, 5).

Medicinal Action: The meat-juice is useful in hiccoughs, (SS, Uttara, 50, 29).

Śyenah

Synonyms: Śasādah, Kravyādah, Krūrah, Vegī, Khagāntakah, Kāmāndhah, Tivra-santāpah, Tapasvī, Tarkshya-nāyakah, Sinchanah, Garuḍānvayah, Śasānakah.

English - Hawk

Hindi - Bāj

Type : Prasaha (SS, CS)

Medicinal Action: The flesh is heavy and aggravates the doshas.

References: DN, 6, 65; RN, 19, 34.

Tarakshuh

Synonyms: Mrga-bhakshah, Tarasvī, Ghoradarśanah, Śivā, Gomāyuh Mrga-dhūrtakah, Mrgādanah.

English - Hyena

Hindi - Tarakhū,

Vernacular - Jarakh (Dalhana)

Type : Guhāsaya (SS),
Prasaha (CS).

It has poisonous fangs (CS).

Description: This is a kind of tiger (Vyāghra-vīśeshah) which hunts deer, (NiS on SS, sūtra, 46, 72).

Medicinal Action: The bile is an antidote to poison, (AS, sūtra, 8, 29).

Timih

English - Whale

Type : This is a marine Mammal (SS)

Description: This is a very big creature, measuring as much as a hundred yojanas, (NiS on SS, sūtra, 46, 118; ARH on AHr, sūtra, 6, 43). (See - Ānūpa-Varga).

Timingilah

English - Whale, Whale Shark.

Type : This is a marine animal (SS),
Vāriśā (CS).

Description: This creature is bigger than timih, (NiS on SS, sūtra, 46, 118). (See - Ānūpa-Varga).

Tittirih

Synonyms: Yājushah, Girih, Chitra-pakshih, Śūrah, Subhūti, Paripālakah.

English - Black partridge

Hindi - Titar

Type : Vishkira (SS, CS).

Description: This is black in colour, (NiS on SS, sūtra, 46, 59).

Varieties: There is another kind of tittiri which is white in colour, named Kapinjalāh.

Medicinal Action:

The Flesh:

Rasa : Astringent and sweet

Guṇa : Heavy and unctous
(Light according to RN)

Virya : Hot (Cold according to RN)

It alleviates all three doshas, and in particular vāta, is appetizing, constipative, strength-giving, enhances intelligence and complexion, and is useful in dyspnoea and hiccoughs.

References: CS, sūtra, 27, 67-68; SS, sūtra, 46, 61; RN, 19, 23-24; DN, 6, 48-49.

Ulūkah

Synonyms: Nakta-chārī, Divāndhah, Kouśikah, Ghargharakah, Bhīru, Kāka-śatru, Nīśācharah, Tāmasah, Kuvih, Nīśāṭah, Krūra-ghoshakah, Ghūkah, Kākārih.

English - *Indian horned Owl*

Type : Prasaha (SS, CS)

Varieties: There is a smaller variety, Kshudrolūkah.

Synonyms: Sākaneyah, Pingalah, Duḍulah, Vrkshāśrayī, Bṛhadrāvah).

Medicinal Action: The flesh aggravates vāta and pitta, causes vertigo and is beneficial in wasting diseases, (SS, uttara, 41, 36; DN, 6, 472-473). The skin and hairs are used for fumigation.

The urine, bile, faeces, hairs and nails are used as collyrium, errhine, etc. in insanity caused by vāta and kapha, (CS, chikitsā, 9, 74-75).

Upachakrah

Synonyms: Madāvilah (NiS and ARH), Śvabhra-charah (ARH).

English - *Smaller Greek Pheasant*

Type : Vishkira (SS, CS)

Description: The bird has a thin beak and is a kind of krakara. (NiS on SS, sūtra, 46, 59; ARH on AHṛ, sūtra, 6, 43). It is a species of chakora, (Chkp on CS, sūtra, 27, 47).

Medicinal Action: The meat-juice is useful in fever.

Ushṭrah

Synonyms: Karabhah, Kramelakah, Dhūmrah, Dīrgha-mārgagah, Grīvānkusah, Kunāsah, Dīrgha-grīvah, Dhūsarah, Vaka-grīvah, Dīrgha-janghah, Dāserakah, Atibalī, Lamboshṭhah, Lavaṇah, Bijānghrikah, Śṛṅkhalakah, Mahādvagah, Mahā-prshṭah.

English - *Camel*

Type : Prasaha (CS),
Grāmya (SS)

Medicinal Action:

The Flesh:

Rasa : Sweet
Guṇa : Light

It alleviates all the three doshas, is strength-giving, nourishing, an aphrodisiac and is useful in meda-roga, haemorrhoids and wasting diseases, (SS, uttara, 41, 37; DN, 6, 380-381; RN, 17, 400).

The Milk:

Rasa : Sweet and slightly salty
Guṇa : Light and dry
Vīrya : Hot

It alleviates kapha and vāta, antidotes poison, is appetizing and is beneficial in flatulence, worms, swellings, ascites, skin diseases, abdominal tumours, dyspnoea and haemorrhoids, (SS, sūtra, 46, 53; CS, sūtra, 27, 220; AHṛ, sūtra, 5, 25; DN, 6, 171; RN, 15, 220).

The Curd:

Rasa : Sweet, salty and slightly alkaline
Guṇa : Heavy
Vipāka : Pungent

It alleviates vāta, is a purgative and is useful in skin diseases, haemorrhoids, worms, ascites and abdominal colic, (SS, sutra, 45, 70; DN, 6, 194; RN, 15, 250).

The Fresh Butter:

It is light, cold, alleviates kapha and vāta, purifies the blood, antidotes poison and is of use in ulcers and worms, (RN, 15, 11).

The Ghee:

Rasa : Sweet
Vīrya : Cold
Vipāka : Pungent

It alleviates kapha and vāta, is appetizing and is useful in swellings, worms, skin diseases, ascites, abdominal tumours, syncope, urinary disorders, insanity, fever, epilepsy and gara visha, (SS, sūtra 45, 100; DN, 6, 150; RN, 15, 200).

The Urine:

Rasa : Bitter, pungent and salty
Virya : Hot

It aggravates pitta, alleviates vāta, is an aphrodisiac, strength-giving and is useful in ascites, cough, dyspnoea, haemorrhoids, swellings, skin diseases, insanity, and worms, (SS, sūtra, 45, 228; CS, sūtra. 1, 103; DN, 6, 495; RN, 15, 507).

Note:

1. The milk is extremely useful in ascites and dropsy, (AS, sūtra, 13, 3).
2. It is very useful if taken for a month or a fortnight by a person suffering from swelling (dropsy), while at the same time avoiding all other food and water, (CS, chikitsā 12, 26).
3. The flesh is beneficial in wasting diseases, (SS, uttara, 41, 37).
4. The urine of a male camel is to be used for medicinal purposes, (ARH on AHṛ, sūtra, 5, 82-83).
5. The dried dung is of use in urinary disorders (including diabetes), (SS, chikitsā, 11, 11).
6. The teeth are beneficial in skin diseases, (CS, chikitsā, 7, 160).
7. A medicated ghee prepared from the dung, milk, meat-juice, etc. is prescribed in wasting diseases, (SS, uttara, 41, 49).
8. The kshāra of the bones is administered internally in a particular kind of urinary disorder (hasti meha), (SS, chikitsā, 21, 9).

Vāgunjārah

Vernacular - Vāhasa (Ḍalhaṇa)

Type : This is a riverine fish (SS)

Valgulī

Synonyms: Naktachārī, Vaktra-vishtā-vinirgamī, Svairiṇī, Kravyādī, Mātrvāhinī, Divāndhā, Divā-svāpā, Mamseshtā.

English - Grey tit

Vernacular - Gadulikā (Ḍalhaṇa)

Type : Pratuda (SS)

References: NiS on SS, sūtra, 46, 67; DN, 6, 61; RN, 19, 31.

Vānarah

Synonyms: Markaṭah, Kīśah, Harih, Śākhā-mṛgah, Kapih, Plavah.

English - Indian Monkey

Type : Prasaha (CS),
Parṇamrga (SS).

Varieties: There is another species known as Golāngulah, (Synonyms : Gourāsyah, Kṛshṇa-mukhah).

Medicinal Action:

The Flesh:

Rasa : Astringent

It alleviates kapha and vāta, is an aphrodisiac, strength-giving, nourishing, constipating, diminishes the amount of urine and is useful in rheumatism, worms, anaemia, dyspnoea and diseases of Medas, (DN, 6, 443-444; RN, 19, 466).

Note:

1. The monkey is said to defaecate on smelling poisoned food, (AHṛ, sūtra, 7, 17).
2. It is considered to have poisonous nails and teeth, (SS, kalpa, 3, 5).

Varāhah

Synonyms: Sūkarah, Vajra-damshṭrah, Romaśah, Kiriḥ, Damshṭrī, Dantāyudhah, Kroḍah, Pīna-skandhah, Bahuprajah, Stabdha-romā, Balī, Pṛthu-skandhah, Bhūdārah, Potrī, Ghoṇānta-bhedanah, Kolah, Potrāyudhah, Bahvapatyah.

English - Pig, Boar

Type : Kūlachara (SS),
Anūpa (CS).

Varieties: There is another species known as Viḍ-varāhah, (Synonyms: Grāmīṇah, Grāmya-sūkarah, Dārakah, Viṣṭhāṣī).

Medicinal Action:

The Flesh:

Rasa : Sweet
Guṇa : Heavy and unctous
Vīrya : Hot

It alleviates vāta, is appetizing, nourishing, an aphrodisiac, strength-giving, increases perspiration, induces drowsiness, brings about sturdiness and corpulence, and relieves fatigue.

The flesh of Viḍ-vāraha is heavy, aggravates pitta, and increases medas (fat), and strength, (CS, sūtra, 27, 78-79; AHṛ, sūtra, 14, 34; DN, 6, 395-398; RN, 19, 413-416).

Note:

1. The flesh is to be regularly partaken of by pregnant women, (CS, śārīra, 8, 21).
2. The fat is used as errhine, etc., in eye diseases, (SS, chikitsā, 26, 17; AS, uttara, 19).
3. The dung when burnt into ashes is very useful in fistulous ulcers, (AS, uttara, 35).
4. The fat is used locally in the disease Mahayoni, and is administered internally in menorrhagia. The fat and marrow is

used externally in guhya rogas, (AS, uttara, 39).

Varmī

Type : This is a fresh-water fish. (SS)

Description: This is snake shaped fish and Brahmadeva considers it to be a fish with big scales, resembling the fish rohita, (NiS on SS, sūtra, 46, 113, 333; ARH on AHṛ, sūtra, 6, 53).

Vartakah

Synonyms: Potha-vartikā, Gānjikayah.

English - Indian Button Quail
Hindi - Baṭer

Type : Vishkira (SS, CS).

Description: This is a species of Vartīra, but is smaller in size, (NiS on SS, sūtra, 20, 5; 46, 59; ARH on AHṛ, sūtra, 6, 44-45).

Medicinal Action:

The Flesh:

Rasa : Astringent
Guṇa : Light
Vipāka : Pungent

It alleviates vāta, is appetizing, constipating, an aphrodisiac, and enhances intelligence and complexion, (AS, sūtra, 7, 70; DN, 6; RN, 19, 38).

Vartīkah

English - Jungle Bush Quail
Vernacular - Vageḍā (Ḍalḥaṇa)

Type : Vishkira (SS, CS).

Description: This is a species of chaṭaka found in forests. It flies in small groups, (NiS on SS, sūtra, 46, 59; ARH on AHṛ, sūtra, 6, 44-45).

Vartīrah

Synonyms: Kapinjalānūkah

English - Rain Quail

Vernacular - Ghargharā (Dalhaṇa)

Type : Vishkira (SS, CS).

Description: This bird resembles Kapinjala, but is smaller in size, (NiS on SS, sūtra, 46, 59; ARH on AHr, sūtra, 6, 44-45).

Vishkira-Varga

This is a group of birds which pick up their food after first scattering it with their bills and claws. SS includes the following birds under this group:

1. Chakora (Greek Pheasant)
2. Kalavinka (House sparrow)
3. Kapinjala (grey Partridge)
4. Krakara
5. Kukkuṭa (wild fowl)
6. Kuruvāhaka
7. Kutittiri
8. Lāva (common quail)
9. Mayūra (pea-fowl)
10. Napṭrkā
11. Sāranga
12. Śātapatra (black woodpecker)
13. Tittiri (black partridge)
14. Upachakra
15. Vartakā (Indian button quail)
16. Vartikā (Bush quail)
17. Vārtikā (Jungle bush quail)
18. Vartira (rain quail)
19. Yavalaka

CS gives a slightly different list of such birds:

1. Avakara (pea fowl)
2. Chakora (greek pheasant)
3. Girivartaka (mountain quail)

4. Gonarda (hill partridge)
5. Indrābha (hedge sparrow)
6. Kanka (heron)
7. Kapinjala
8. Krakara
9. Kukkuṭa
10. Kukkuṭa
11. Lava
12. Rakta-vartmaka (red jungle fowl)
13. Sārāpada (stork)
14. Tittiri (black partridge)
15. Upa-chakra
16. Varapada
17. Vartaka (Indian button quail)
18. Vartikā (Jungle bush quail)
19. Vartiraka (rain quail)

Medicinal Action:

The Flesh:

Rasa : Sweet
Anu-Rasa: Astringent
Guṇa : Light
Vīrya : Cold

It alleviates vāta and pitta, and is diuretic, (SS, sūtra, 46, 59; NiS on ibid; CS, sūtra, 27, 59-60).

Vṛkah

Synonyms: Vatsabhakshah, Ihāmṛgah, Kokah, Vatsādanah, Avibhuk (ARH; DN, 6).

English - Wolf

Type : Guhāśaya (SS),
Prasaha (CS).

Description: A small animal resembling a dog, which preys on other animals, (NiS on SS, sūtra, 46, 72; Chkp on CS, sūtra, 27, 35).

Medicinal Action: Its urine, bile, dung, skin, etc. are used as errhine, collyrium and for fumigation in insanity caused by vāta and kapha, (CS, chikitsa, 9, 74-75).

Vṛksha-śayika

English - *Squirrel*
Vernacular - *Gilī (Ḍalhana)*

Type : Paṇṇamṛga (SS)

Description: This is an animal resembling a monkey, which lives on trees, (NiS on SS, sūtra, 46, 76).

Vyāghrah

Synonyms: Vikṛtamukhah, Nidrāluh, Himsrah (NiS)

English - *Tiger*

Type : Guhāśaya (SS),
 Prasaha (CS).

Medicinal Action:

The Flesh:

Rasa : Sweet
 Guṇa : Light and unctous
 Virya : Hot

It alleviates vāta and pitta, is strength-giving, aphrodisiac and appetizing.

Note:

1. The bile antidotes poison, (AS, sūtra, 8, 29).
2. The fat is used as collyrium in certain eye-diseases, (AS, uttara, 16).

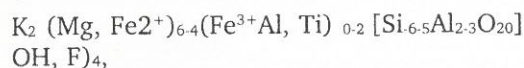
References: DN, 6, 391-392; RN, 19, 410, (see - DVIPI).

Appendix

APPENDIX

Chemical composition of inorganic drugs**Abhraka:**

Natural silicates, which readily separate into very thin, generally elastic, glass like leaves. The black mica that is recommended in Ayurveda is biotite mica, the composition of which is



Manganese may also be present. The type of mica depends on the percentage of Mg: (Mg+Fe) present. Biotite is a common mineral in a variety of rocks.

Chandra-kanta: Moonstone. $NaAlSi_3O_8$ or $KAlSi_3O_8$.

Chapala: Bismuth occurs in a free state in nature, often associated with silver, gold, copper, lead and other minerals. It is a greyish-white metal, with a slightly reddish tinge, lustrous and very brittle, having a specific gravity of 9.8 and melting at 271 degrees C. The white variety is native bismuth; the reddish one is bismuth ore, bismite, Bi_2O_3 ; the yellowish white variety is tetradyomite, $Bi_2(Te, S)_3$; and the black type may be bismuthinite, Bi_2S_3 .

Some authorities however identify Chapala as Fluorspar.

Churnam: Lime, Calcium Oxide, CaO .
Dugdha-pashana: $Mg_6[Si_8O_{20}](OH)_4$.

Steatite or soapstone is a massive variety of talc, mostly white or various shades of grey, but sometimes greenish or reddish, and having a greasy or soapy feel. It is the softest mineral in Moh's scale of hardness.

Gairika: Haematite, Fe_2O_3 .

Giri-sindura: Red oxide of mercury.

Godanti: Natural calcium sulphate, $CaSO_4 \cdot 2H_2O$.

Gandhaka: Sulphure, S.

Gomedaka: Garnets are silicate minerals containing various divalent and trivalent cations, the general formula being $X_3Y_2Si_3O_{12}$, with X= divalent ions such as Ca^{2+} , Mg, Fe, Mn, etc. and Y= trivalent ions such as Al^{3+} , Fe, Cr. and Ti.

Gowri-pashana: Native arsenic, As. White arsenic is As_2O_3 .

Arsenic is an extremely brittle, steel grey metal of a brilliant lustre.

Haritala: Orpiment, As_2S_3 , occurs in the oxidised portions of arsenic veins.

Haritasma: Turquoise, $CuAl_6(PO_4)_4(OH)_{8.4} \cdot 5H_2O$.

Hingula: Cinnabar, HgS , with impurities of clay, bitumen, etc.

Hiraka: Diamond, C, crystalline carbon.

Kamsya: Bronze. An alloy of copper and tin.

Kankushtha: Magnesite, $MgCO_3$.

Kasisa: Green vitriol, copperas, melanterite, $FeSO_4 \cdot 7H_2O$.

Loha: Wrought iron, *munda loha*.

Steel, *tikshna loha*.

Magnetic iron, *kanta loha*.

Makshika: Chalcopyrites, copper pyrites, $CuFeS_2$.

Manahsila: Realgar, As_2S_2 , occurs associated with orpiment, to which mineral it changes on exposure.

Mandura: Iron rust.

Manikya: Ruby, $0Al_2O_3$.

Mrdra-srng: Litharge, yellow oxide of lead, PbO .

Marakata: Emerald, beryl, $Be_3Al_2Si_6O_{18}$.

Emerald is an emerald green or pale green gemstone variety, the colour being due to a small amount of chromium present.

Naga: Lead, Pb, is known native, but is of exceedingly rare occurrence. Lead is a bluish-grey metal, the freshly cut surface of which shows a bright metallic lustre, which, however, quickly oxidises on exposure to air. It is soft, may be scratched with the fingernail, and makes a black streak on paper. It fuses at 327 degrees C, and crystallises when cooled slowly.

Navasara: Sal ammoniac, NH_4Cl , occurs as a white efflorescence in volcanic districts. This is white if pure, but usually yellowish or grey.

Nila: Sapphire, Al_2O_3 . Aluminium oxide with traces of cobalt which gives the blue colour.

Nilanjana: Galena, blue lead, PbS . Silver sulphide is almost always present, and galena is one of the most important sources of silver. When sufficient silver is present to be worth extracting, the ore is called argentiferous galena, and zinc, cadmium, iron, copper, antimony and gold have also been detected in analyses of this metal.

Parada: Mercury, Hg. It is a silver white metal, liquid at ordinary temperatures; it boils at 357 degrees C, and has a specific gravity of 13.59. When pure, it is unaffected by dry or moist air. Mercury combines with most metals to form alloys called amalgams, and these decompose on heating with volatilization of the metallic mercury. Mercury is usually obtained from its ore, cinnabar, HgS , by roasting in an oxidising atmosphere, whereby the sulphur is oxidised to sulphurous acid and the freed metal volatilised and condensed.

Pittala: An alloy of copper and zinc.

Pushpanjana: Zoncite, red oxide of zinc, ZnO ; upto 10% manganese may be present, which gives zincite its red colour, since chemically pure zinc oxide is white; traces of FeO are usually present.

Pushparaga: Topaz, $\text{Al}_2\text{SiO}_4(\text{OH}, \text{F})_2$.

Rajata: Silver, Ag, occurs in nature in the free state, occasionally 99% pure but generally containing copper, gold and other metals. It

is a white metal, which, next to gold, is the most malleable and ductile of all metals and the best conductor of heat and electricity. The specific gravity of silver is 10.5, and its melting point is 960.5 degrees C. It is unaltered by dry or moist air. There are two main classes of silver ores. The first is the dry or siliceous ores, which are mined primarily for their silver content--- the silver ores proper; but the greater part of the world production of silver is derived from the smelting of metalliferous ores, such as those of lead, copper and zinc, which contain a small percentage of silver.

Rajavarta: Lazurite, Lapis lazuli, $(\text{Na}, \text{Ca})_8[(\text{Al}, \text{Si})_{12}\text{O}_{24}](\text{S}, \text{SO}_4)$

Rasaka: Zinc ore, mainly ZnS .

Rasanjana: Although most authorities refer to Rasanjana as being the product of the plant Daru-haridra, it is doubtful whether a herbal extract will be dealt with in texts dealing with metals and minerals. Rasanjana may perhaps be HgO , the yellow oxide of mercury.

Saindhava-lavana: Halite, rock salt.

NaCl , CaSO_4 , CaCl_2 and MgCl_2 are usually present as impurities, sometimes with MgSO_4 . The presence of magnesium compounds causes the mineral to become wet and lumpy. Deposits of rock salt occur as extensive geological beds, and are the result of the evaporation of enclosed or partly enclosed bodies of seawater. (It may also be a mixture of NaCl and KCl).

Samudra-lavana: Common salt, NaCl .

Sasyaka: Chalcantite, blue vitriol, $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$.

Silajatu: Bitumen, asphaltum, mineral pitch is a mixture of different hydrocarbons, black or brownish in colour, usually soft, but sometimes hard with a conchoidal fracture. In suitable solvents such as carbon bisulphide, asphalt may be dissolved into various hydrocarbons or into a non-bituminous organic substance containing any organic matter present in the crude material.

Sourashtri: Alum, kalinite, $KAl(SO_4) \cdot 12H_2O$. Alum crystallises as cubic octahedra but usually occurs massive and is found in shales (alum shales) which contain pyrites and are undergoing decomposition. Alum is readily soluble in water, and has a characteristic astringent taste.

Souvarchala-lavana: Nitre, saltpetre, nitrate of potash, KNO_3 .

Sphatika: Rock crystal, the purest and most transparent variety of quartz, SiO_2 .

Suvarna: Gold, aurum, Au, occurs very widely diffused in nature, chiefly in the free state, but invariably alloyed with some proportion of silver or copper, and occasionally with bismuth, mercury and other metals.

Svarjika-kshara: Natron, Na_2CO_3 .

Tamara: Copper, Cu, is a widely distributed and abundant element in combination, and is also found in the native state. The metal copper has a specific gravity of about 8.9, and melts at 1100 degrees C.

Tankana: Borax, $Na_2B_4O_7 \cdot 10H_2O$.

Tuttha: Blue vitriol, $CuSO_4 \cdot 5H_2O$.

Vaidurya: Cat's eye, $BeAl_2O_4$.

Valuka: Sand is made up mostly of small grains of quartz, (more rarely of flint). Quartz is SiO_2 .

Vanga: Tin, Sn is said to have been found native, but if it does occur so, is of very rare occurrence. Tin is a bright, white metal, malleable and ductile. It has a specific gravity of 7.3 and melts at 232 degrees C.

Varta-loha: It is an alloy of copper, tin, zinc and traces of iron and lead.

Vimala: Iron pyrites, FeS_2 is a common mineral in many parts of the world. It is found in many ore veins, and large pyrite deposits are worked mainly for sulphur, but in some cases for the other metals contained in the pyrite, such as copper...In some cases, the pyrite contains enough gold to make extraction commercially viable.

Yasada: Zinc, Zn is a bluish-white brittle metal. It melts at 419 degrees C and has a specific gravity of about 7.15.

(Based on Rutley's Elements of Mineralogy.)