THERAPEUTIC POTENTIALS OF MINERALS IN ANCIENT INDIA:
A REVIEW THROUGH CHARAKA SAMHITA

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Abstract: Ayurvedic system of medicine has stood the test of time for four millennia or more. Ancient seers found that the drugs from different origin (herbal, metal or animal) are the most suitable tools in maintaining health in the healthy and eradicating diseases in the diseased. The use of metallo-mineral preparations in healthcare is a unique characteristic feature in this system. Processed metals and minerals including Mercury, Lead, Arsenic, Copper etc. were found to be used very frequently by the seers of Indian tradition in different disease conditions with great conviction. It is generally claimed that these metals / minerals gets detoxified during the manufacturing processes, if followed specified guidelines as emphasized in the scriptures of Ayurveda, especially Rasashastra texts. Charaka Samhita, one of the scheduled books of Ayurveda also holds ample references regarding the use of minerals for different purposes, as reflected in this paper.

Keywords: Arsenic, Ayurveda, Charaka Samhita, Copper, Minerals.

Introduction

Ayurvedic system of medicine is of great antiquity and dates back to about 5000 years BC. Materia Medica of Ayurveda contains drugs belonging to plant, animal and mineral in origin.1 In addition to the single drug recipes, poly-herbal and herbo-mineral formulations have also been incorporated by seers of ancient India who have documented their clinical experiences for passing on to future generations.

During the medieval period, with the advent of Rasashastra, certain heavy metals and minerals were incorporated into Ayurvedic therapeutics. Rasashastra, an integral part of Ayurveda, deals with drugs of mineral and metallic origin, their varieties, characteristics, processing techniques, properties, therapeutic uses, possibilities of developing adverse effects and their management etc. in a comprehensive way. Actual development of Rasashastra as an independent branch of learning and therapy started from 8th AD and onwards. Though, the utility of metals and minerals in therapeutics became more evident from 8th AD, a good deal on the description of metals and minerals, their processing techniques, therapeutic utility etc. can be observed in classics like Charaka Samhita, Sushruta Samhita etc., which belongs to the era much earlier since 8th AD.

In due course of time, herbo-mineral and metallic preparations occupied a significant place in Ayurvedic treatment and are now routinely being practiced in different parts of India. The preparations are said to be safe, efficacious even at minute doses and never develop any significant untoward effects2 when manufactured and used as specified in classical texts.

Ayurvedic scholars use the metallic preparations frequently in their routine practices and these preparations have been reported to be safe through well designed experimental3 and clinical trials. However, the past decade has witnessed concerns regarding the safety of Ayurvedic herbal, herbo-mineral and metallic preparations by the western medical circles, and
this has damaged the reputation of the age-old Ayurvedic heritage.\textsuperscript{4}

The need of the hour is to allay such fears, by creating greater awareness and placing in proper perspective, the context in which these drugs are recommended for use and the methods by which they were used as medicines.

The present paper is a simple compilation focusing on the uses of minerals mentioned in Charaka Samhita. This review is expected to give an insight to assume the frequency of usage of minerals during the period of Charaka.

Makshika

Makshika has been placed under the group of Maharasas in the texts of Rasa Shastra.\textsuperscript{5} The use of Makshika in therapeutics can be traced back to the period of Samhitas, where Charaka advocated its utility in different disorders like Kusta (skin disorders), Pandu (anaemia) etc. This mineral is mentioned as an esteemed Rasayana,\textsuperscript{6} possibly because of supplementing some of the vital elements to the body.

Makshika is a copper containing chalcopyrite (CuFeS\textsubscript{2}), is a combination of Copper (>5%), Iron (>20%) and Sulphur (>12%),\textsuperscript{7} whereas the Makshika Satva is a combination\textsuperscript{8} of Cu, Ferric Oxide, Ferrous Oxide, Ca, Na, K, Phosphates and Silica. It is evident from this unique combination of elements that, Makshika is the best Rasayana.

Formulations of Makshika have been advocated to be used in different conditions like Pandu (anaemia), Arsha (haemorrhoides), Meha (diabetes), Shopha (inflammation) etc. and also as a useful rejuvenating drug.\textsuperscript{9} The normal dose mentioned for Makshika Bhasma is 65-250 mg.\textsuperscript{10} The formulations mentioned in Charaka Samhita, which contain Makshika as one of the components along with indications for which recommended are given in Table 1.

Screening through Charaka Samhita reveals the below important points:

Terms like Makshika Dhatu (Chikitsa 7/70 and 16/73), Suvarna Makshika (Chikitsa 7/71), Makshika (Chikitsa 16/82), Tapi (Chikitsa 16/78) and Tapya (Chikitsa 26/250) were used by Charaka for this mineral. The term Makshika used in few other places has been clarified as Madhu (honey) by the commentator (Chikitsa 7/70 and 16/83).

Makshika has been defined by commentator Chakrapani as the Dhatu, which is found available on the river banks of Tapi (Charaka Chikitsa 26/250).

The version at Charaka Chikitsa 16/82 may be emphasizing on the adoption of Shodhana procedure of the minerals, including Makshika etc. prior to their utilization in therapeutics.

Shilajatu

Shilajatu another drug from Maharasa group is the most important drug in Ayurveda and is used in treating a wide range of diseases. Charaka recognized this drug as vital for Rasayana purposes and says that there is no disease on earth, which cannot be cured with Shilajatu. Further, he goes on emphasizing that the administration of Shilajatu in proper time will impart strength in an individual.\textsuperscript{11}

Classics speak about its origin as an excretion due to heat of sun from the gold and other mineral ores in the mountains and is of the nature of lac.\textsuperscript{12} Further, Rasa Vagbhata narrates that a sample of Shilajatu which forms into

| Sr. No. | Reference | Formulation | Therapeutic Uses |
|---------|-----------|-------------|------------------|
| Utilization in therapeutics : Internal Administration |
| 1       | Chikitsa 7/70 | Lelitaka Yoga | Kusta           |
| 2       | Chikitsa 7/71 | Gandhaka Yoga | Kusta           |
| 3       | Chikitsa 16/73 | Mandura Vataka | Pandu         |
| 4       | Chikitsa 16/78 | Leha Yoga | Pandu           |
| 5       | Chikitsa 16/82 | Yogaraja | Pandu           |
| Utilization in therapeutics : External Application |
| 6       | Chikitsa 21/130 | Lepa Yoga | Granthi, Visarpa |
| 7       | Chikitsa 26/250 | Varti Yoga | Netra Roga     |

Table 1. References of Makshika in Charaka Samhita
Lingakara on fire is genuine. Few other classics say that, a good sample of this element when dropped into pure water from the tip of grass will produce thin fibrils and dissolves completely, emitting the odour of Gomutra. As this element is attributed with all the qualities of Rasa, Uparasa, Ratna and Loha, it is used as a great alterative and useful alternative for conquering premature old age.

Charaka, while classifying the Dravyas depending on the source of origin, has used the term Samala. While commenting on this verse, Chakrapani opines that Samala can be considered as slag of Lohas i.e. Shilajatu. The seer used terms like Shilodbdha (Chikitsa 15/113, 30/90), Adrijatu (Chikitsa 16/78), Raupymala (Chikitsa 16/81), Shailasya Jatu (Chikitsa 28/242), Girja (Chikitsa 1-3/64, 21/130, 30/148), Shilahvaya (Chikitsa 1-3/65, 26/99) etc. for Shilajatu and its types.

Formulations of Shilajatu are good antiseptics, pain relievers, expectorants and useful in a wide range of diseases like inflammations, skin diseases, urinary tract infections, renal calculi, diabetes and associated complications etc.

The normal dose mentioned for Shilajatu is 250-1000mg. The herbo-mineral formulations mentioned in Charaka Samhita, which hold Shilajatu as an ingredient, are placed at Table 2.

Table 2. References of Shilajatu in Charaka Samhita

| Sr. No. | Reference | Formulation | Therapeutic Uses |
|---------|-----------|-------------|------------------|
| 1       | Sutra 21/24 | Shilajatu Yoga | Sthaulya |
| 2       | Sutra 24/56 | Shilajatu Yoga | Murccha, Mada |
| 3       | Chikitsa 1 - 3/64 | Shilajatu Rasayana | Rasayana |
| 4       | Chikitsa 5/97 | Shilajatu Prayoga | Vataja Gulma |
| 5       | Chikitsa 12/49 | Shilajatu Prayoga | Tridoshaja Shotha |
| 6       | Chikitsa 13/152 | Shilajatu Prayoga | Samipataja Udara Roga |
| 7       | Chikitsa 15/113 | Yavagu Yoga | Grahani |
| 8       | Chikitsa 16/78 | Leha Yoga | Pandu |
| 9       | Chikitsa 16/81 | Yogaraja | Pandu, Kasa, Vishama Jwara |
| 10      | Chikitsa 16/88 | Shilajatu Vataka | Pandu, Kusta |
| 11      | Chikitsa 26/99 | Shilajatu Yoga | Kaphaja Hridroga |
| 12      | Chikitsa 28/242 | Shilajatu Yoga | Avrita Vata |
| 13      | Chikitsa 29/159 | Shilajatu Prayoga | Vata Rakta |
| 14      | Chikitsa 30/90 | Pushyanuga Churna | Rajo Dosha |
| 15      | Chikitsa 30/148 | Shilajatu Prayoga | Reto Dosha |
| 16      | Chikitsa 7/72 | Lelitaka Yoga | Kusta |
| 17      | Chikitsa 21/130 | Lepa Yoga | Granthi, Visarpa |
| 18      | Chikitsa 23/213 | Pancha Shirisha Agada | Visha |
| 19      | Sutra 1/70 | Referred as ‘Samalaah’ | Classification of Parthiva Dravya |
| 20      | Chikitsa 1 - 3/48 | Classification | Types and qualities of Shilajatu |
**Sasyaka / Tuttha**

The mineral *Sasyaka* also known as *Tuttha* is a popular drug for external application since ancient times. *Tuttha bhasma* is useful for internal administration. In modern science, it is equated with copper sulphate (CuSO₄·5H₂O) familiar as blue Vitriol. The aqueous solution is useful to irrigate lesions of *Kusta* (skin diseases), *Arshas* (haemorrhoides), *Dusta Vrana* (non-healing ulcers) etc. The solutions of *Sasyaka* are also useful in various *Netra rogas* (eye diseases) as *Aschyotana* (eye drops). The normal dose mentioned for the *Bhasma* is 15-30mg.

Screening through the classic reveals that, formulations with *Sasyaka* have often been preferred for topical application. Brief details are placed at Table 3.

The term *Sasyaka* is not available in *Charaka Samhita*. The Seer has used terms like *Amritasanga* and *Tuttha* while referring to this mineral. Commentator, Chakrapani quoted other terms like *Karparika Tuttha* (*Chikitsa* 25/117), *Kharparika Tuttha* (*Chikitsa* 7/114), *Mayura Tuttha* (*Chikitsa* 14/55) and *Tuttha* (*Sutra* 3/10) while providing clarification to the term *Amritasanga*. Probably, these terms are synonymous with each other. But the version of the same commentator as “*Dwe Tutthe iti Mayura Tuttham Kharparkha Tuttham Cha*” (*Chikitsa* 7/108) clarifies that *Mayura* and *Kharparika Tuttha* are different from each other.

**Gandhaka**

A pale yellowish mineral of great importance, known as *Gandhaka* in Ayurveda is the most important *Rasa Dravya* after *Parada* (mercury). It is known for its vast range of therapeutic applications since ancient times and there are hardly any preparation in *Rasashastra*, which does not have *Gandhaka* or its compound as an ingredient. Thus, it can be said that, it is the most essential element of *Rasashastra* placed under the group of *Uparasa*. Because of the peculiar odour of the element, it is described as *Gandhaka*. The English equivalent for this element *sulphur* is probably derived from the Sanskrit term *Sulbari* (antagonistic to copper).

When combined with *Parada* it forms a compound - *Kajjali* (a fine, black, lusterless powder) which is a basic compound in preparing a number of herbo-mineral / mineral / metallic preparations. Normal dose mentioned for the *Shuddha Gandhaka Churna* (powder) is 125 to 1000mg.

Though it is an important mineral from *Rasashastra* point of view, formulations with Sulphur as a component are rarely found mentioned in *Charaka Samhita*. On scrutiny, only four references were found in the classic that are placed at Table 4.

Terms like *Gandha*, *Saugandhika*, *Lelitaka* are used to refer this mineral. For the term *Saugandhika*, the commentator, Chakrapani

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**Table 3. References of *Sasyaka* in Charaka Samhita**

| Sr. No. | Reference | Formulation          | Therapeutic Uses |
|---------|-----------|----------------------|------------------|
| 1       | Sutra 3/10 | Avachurna Yoga       | Kusta            |
| 2       | Sutra 3/12 | Lepa Yoga            | Kusta            |
| 3       | Chikitsa 7/114 | Kanakaksiri Taila         | Krimi, Kandu, Kusta |
| 4       | Chikitsa 7/108 | Tikta Ikshwakvadi Taila    | Kandu, Kusta     |
| 5       | Chikitsa 7/120 | Yamaka Yoga        | Vipadika         |
| 6       | Chikitsa 14/55 | Lepa Yoga            | Arshahara        |
| 7       | Chikitsa 25/117 | Varnakara Yoga         | Varnakara        |
| 8       | Chikitsa 26/250 | Sukhavati Varti      | Timira Netra Roga |
opined that, it may be *Gandhatrina* (variety of grass) (Sutra 3/10), *Gandhaka* (Sutra 3/10), *Manikya Bheda* (type of gem) (Chikitsa 17/126).

**Gairika**

Another mineral in the group of *Uparasa* of *Rasashastra* is *Gairika*,22 which is familiar for its therapeutic purposes since ages. *Charaka* classified this mineral under *Parthiva Dravya* and grouped under *Shonitasthapana Gana*, while *Sushruta* used this drug in formulating *Maha Sugandhi Agada*,23 which is a potent *Vishahara* (anti-poisonous) agent. *Rasa Vagbhata* classified *Gairika* into two basic varieties viz. *Swarna* and *Pashana*, the former being the acceptable one. *Swarna Gairika* is smooth to touch (*Snigdha / Masruna*), extreme red in color (*Atyanta Shonitam*), while the latter variety is hard (*Kathina*) and coppery red (*Tamra varna*) in color.24

The term *Lohitamrit* (Chikitsa 23/101) has been interpreted as *Gairika* by the commentator *Chakrapani*. In addition, another term *Kanchana Gairika* was also found mentioned in the classic at Chikitsa 20/32. The cherry red colored mineral is identified as Red Oxide of Iron (Fe₂O₃) or *Hematite*, which contains Iron (>16%) as principal constituent,25 because of which the element may be a proven remedy in cases of anaemia. The normal dose mentioned for the *Shuddha Gairika* is 250-500 mg.26 The formulations mentioned in *Charaka Samhita*, which hold *Gairika* as an ingredient are placed at Table 5.

**Kasisa**

*Kasisa*, another mineral mentioned in *Rasa* classics under *Uparasa Varga* was frequently preferred by *Charaka* for external purposes in conditions like *Switra* (leucoderma), *Khaliya* (alopecia), *Kusta* (skin disorders), *Arshas* (haemorrhoides) etc. *Sushruta* classified this element under *Ushakadi Gana* and advised its use in cases of *Ashmari* (renal calculi), *Mutrakrchn* (dysurea) etc.27 Terms like *Salomasho* (Sutra 3/4), *Romasham* (Chikitsa 29/152) have been used by *Charaka*, which have been clarified as *Dhatu Kasisam* and *Kasisam* respectively by *Chakrapani*.

It is identified as Green Vitreol (FeSO₄ 7H₂O) or Ferrous Sulphate and a genuine sample contains Iron (>25%) and Sulphur (>15%).28 *Kasisa Bhasma* is useful in cases of *Jwara* (pyrexia), *Mutrakricchra* (dysuria), *Ashmari* (calculi), *Pandu* (anaemia), *Pliharoga* (spleenomegaly), *Vrana* (ulcers), *Switra* (leucoderma / vitiligo) etc.29 As the mineral has a good amount of Iron in its composition, it may be proven as a promising remedy in cases of anaemia. The normal dose mentioned for *Kasisa Bhasma* is 65-250 mg.30 The formulations mentioned in *Charaka Samhita*, which hold *Kasisa* as an ingredient are placed at Table 6.

**Kankshi**

*Kankshi*, another familiar mineral in *Ayurveda* is well recognized with synonyms like *Saurashtri*, *Sphatika*, *Shubhra* etc. *Astanga Hridaya* advised the internal administration of *Kankshi* in cases of *Hikka*, *Shwasa* etc.31 Conventionally, this drug is used for dressing of bleeding wounds and as a gargling agent in disorders of oral cavity. The sample with characters like slight yellowish (*ishat pita*) in

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**Table 4: References of Gandhaka in Charaka Samhita**

| Sr. No. | Reference | Formulation | Therapeutic Uses |
|---------|-----------|-------------|------------------|
| 1       | Chikitsa 17/125 | Muktadya Churna | Hikka, Shwasa |
| 2       | Sutra 3/10 | Avachurna Yoga | Kusta |
| 3       | Chikitsa 7/70 | Lelitaka Prayoga | Kusta |
| 4       | Chikitsa 7/71 | Gandhaka Yoga | Kusta |
color, heavy (guru) and shiny (snigdha) should be considered as a genuine variety.\textsuperscript{32}

It is identified as \textit{Alum} \([\text{K}_2\text{SO}_4\text{Al}_2(\text{SO}_4)_3\cdot24\text{H}_2\text{O}]\)\textsuperscript{33} and is a useful element with wide therapeutic attributes like \textit{Vranaghna} (wound healing), \textit{Chakshushya} (helpful in eye diseases), \textit{Visarpa} (erysipelas), \textit{Switra} (vitiligo), \textit{Vishama Jwara} (viral fevers), \textit{Mukha Roga} (diseases of oral cavity)\textsuperscript{34} etc. The normal dose of \textit{Shuddha Kankshi} is 125 - 250 mg.\textsuperscript{35} The formulations mentioned in \textit{Charaka Samhita}, which hold Kankshi as an ingredient are placed at Table 7.

\textit{Charaka} used both the terms i.e. \textit{Kankshi} (\textit{Chikitsa} 23/54 and 30/121) and \textit{Saurashtri} (\textit{Chikitsa} 7/114, 15/138, 30/79 and 30/98) to refer this mineral. Commentator, \textit{Chakrapani} clarified that, both these terms are synonymous with each other (\textit{Chikitsa} 23/54). In addition, he used another term \textit{Tuvari Mrittika} (\textit{Chikitsa} 30/79) considering which, it can be said that, these three terms are synonymous.

\textbf{Haritala}

\textit{Haritala} is one of the ancient minerals known for its therapeutic properties, which was used externally as well as internally since the period of \textit{Samhitas}. This mineral is mentioned as \textit{Alum} in \textit{Charaka Samhita} and grouped under \textit{Parthiva Dravyas}. \textit{Sushruta} classified it under \textit{Sthavara (dhatu) Visha}.\textsuperscript{36} \textit{Rasa Vagbhata} classified this mineral into two types viz. \textit{Patra Tala} and \textit{Pinda Tala}, the former one being the acceptable variety. \textit{Patra Tala} should be golden yellow in color (\textit{swarna varnam}), heavy (guru), shiny (snigdha), lustrous (\textit{bhasuram}) with thin and innumerable flakes (\textit{tanu and bahu patram}).

### Table 5. References of \textit{Gairika} in \textit{Charaka Samhita}

| Sr. No. | Reference | Formulation | Therapeutic Uses |
|---------|-----------|-------------|------------------|
| 1       | Chikitsa 4/73 | Pana Yoga | Raktapitta |
| 2       | Chikitsa 4/79 | Pana Yoga | Raktapitta |
| 3       | Chikitsa 20/32 | Pana Yoga | Pittaja Chhardi |
| 4       | Chikitsa 20/33 | Pana Yoga | Pittaja Chhardi |
| 5       | Chikitsa 20/33 | Pana Yoga | Pittaja Chhardi |
| 6       | Chikitsa 23/46 | Pana Yoga | Visha |
| 7       | Chikitsa 23/101 | Ksharagada | Sarva Visa |
| 8       | Chikitsa 26/210 | Khadiradi Gutika | Mukha Roga |
| 9       | Chikitsa 30/91 | Pushyanuga Churna | Rajo Dosha |

#### Utilization in therapeutics: Internal Administration

| Sr. No. | Reference | Formulation | Therapeutic Uses |
|---------|-----------|-------------|------------------|
| 10      | Sutra 3/5 | Pradeha Yoga | Kusta, Kilasa, Dadru |
| 11      | Chikitsa 4/99 | Avapidana Nasya | Raktapitta |
| 12      | Chikitsa 21/82 | Pradeha Yoga | Visarpa |
| 13      | Chikitsa 23/220 | Lepa Yoga | Nakha, Danta Visha |
| 14      | Chikitsa 25/117 | Varnakara Lepa | Savarnikaran |
| 15      | Chikitsa 26/232 | Netra Varti | Netra Voga |
| 16      | Chikitsa 26/235 | Netra Varti | Netra Voga |

#### Utilization in therapeutics: External Application

| Sr. No. | Reference | Formulation | Therapeutic Uses |
|---------|-----------|-------------|------------------|
| 17      | Sutra 1/70 | Classified under \textit{Parthiva Dravya} | |
| 18      | Sutra 4/18 | Grouped under \textit{Sthapana Gana} | |
The second variety i.e. Pinda Tala should be devoid of flakes (nishpatram), appears like a mass (pinda sadrusham), heavy (guru) with inferior degree of qualities and on administration, it causes infertility (pushpa haranam) in females. Chemically it is identified as Orpiment (As₂S₃), probably derived from latin term Auric Pigmentorum, which means Gold Paint.

Haritala Bhasma is beneficial in Kushta (skin diseases), Vishama Jwara (viral fever), Vrana (ulcers), Arsha (haemorrhoids), Bhagandara (fistula-in-ano), Apasmara (epilepsy), Visarpa (erysipelas) etc. Being an arsenical mineral, it should be administered with great caution.

| Sr. No. | Reference | Formulation            | Therapeutic Uses          |
|---------|-----------|------------------------|---------------------------|
| 1       | Chikitsa 26/271 | Mahanila Taila         | Palita                    |
| 2       | Chikitsa 29/152 | Kalka Yoga             | Vatarakta                 |
| 3       | Sutra 3/4   | Pradeha Yoga           | Kusta                     |
| 4       | Sutra 3/5   | Pradeha Yoga           | Kusta                     |
| 5       | Sutra 3/10  | Avachurna Yoga         | Kusta                     |
| 6       | Sutra 3/15  | Lepa Yoga              | Kusta                     |
| 7       | Chikitsa 7/102 | Kustadi Taila         | Kusta                     |
| 8       | Chikitsa 7/109 | Tikta Ikshwakvadi Taila | Kandu, Kusta              |
| 9       | Chikitsa 7/114 | Kanaka Kshiri Taila    | Krimi, Kandu, Kusta       |
| 10      | Chikitsa 7/117 | Lepa Yoga              | Sridha                    |
| 11      | Chikitsa 7/167 | Shamana Lepa Yoga      | Switra                    |
| 12      | Chikitsa 21/126 | Lepa Yoga              | Granthi, Visarpa          |
| 13      | Chikitsa 25/115 | Lepa Yoga              | Twak Janana               |
| 14      | Chikitsa 25/117 | Varnakara Lepa        | Savarnikarana             |
| 15      | Chikitsa 26/254 | Dristiprada Varti     | Dristiprada               |
| 16      | Chikitsa 30/79 | Dhatakyadi Taila       | Yoni Roga                 |
| 17      | Chikitsa 30/121 | Yoni Varti             | Yoni Roga                 |

| Sr. No. | Reference | Formulation            | Therapeutic Uses          |
|---------|-----------|------------------------|---------------------------|
| 1       | Chikitsa 15/138 | Kiratadya Churna     | Grahani                   |
| 2       | Chikitsa 23/54  | Mrita Sanjivani Agada | Sarva Visha               |
| 3       | Chikitsa 30/98  | Pana Yoga              | Pittaja Asrigdhara        |
| 4       | Chikitsa 7/114  | Kanaka Kshiri Taila   | Krimi, Kandu, Kusta       |
| 5       | Chikitsa 30/79  | Dhatakyadi Taila      | Yoni Roga                 |
| 6       | Chikitsa 30/121 | Yoni Varti             | Picchila Yoni             |

Table 6. References of Kasisa in Charaka Samhita

Table 7. References of Kankshi in Charaka Samhita
The therapeutic dose mentioned for Haritala Bhasma is 30-60 mg. The formulations mentioned in Charaka Samhita, which hold Haritala as one of the components, are as shown in Table 8.

Charaka used both the terms i.e. Alam and Haritala to refer this mineral. Most of the formulations were mentioned for external use and only two formulations for internal use.

**Manahshila**

Manahshila is mineral containing Arsenic and grouped under Uparasa in Rasa classics. Charaka extensively used this mineral in formulating compounds for external application as reflected in Sutra Sthana. Rasa Vagbhata classified this mineral into three types viz. Shyamangi, Kanaviraka and Khandakhya, the last variety being the best and acceptable one. Shyamangi is heavy (bharadhya) and available in different colors like Shyama, Rakta and Pita. Kanaviraka is coppery red in color (tamrabha), lustrous (tejaswini), devoid of yellowish tinge (nirgaura), while Khandakhya variety can be easily broken into powder form (churnibhuta), bright red in color (ati raktangi) and heavy (bhara).

Chemically it is identified as Realgar - Red Orpiment (As₂S₃) probably derived from Arabic term Rehj - Alghar, which means powder of the caves. Because of it being an arsenical mineral, it should be administered with great caution. It is beneficial in Swasa (breathlessness), Kasa (cough), Agnimandya (loss of appetite), Kusta (skin diseases), Jwara (fever) etc. The normal dose mentioned for Manahshila is 4-8 mg.

The formulations mentioned in Charaka Samhita, which hold Manahshila as one of the components, are tabulated in Table 9. Charaka used only one term i.e. Manahshila throughout the classic to refer this mineral. This mineral is frequently preferred by the seer for administration through different routes of drug administration.

Table 8. References of Haritala in Charaka Samhita

| Sr. No. | Reference | Formulation | Therapeutic Uses |
|--------|-----------|-------------|------------------|
| **Utilization in therapeutics : Internal Administration** | | | |
| 1 | Chikitsa 17/78 | Dhooma Yoga | Hikka, Swasa |
| 2 | Chikitsa 23/54 | Mrita Sanjivani Agada | Sarva Visha |
| **Utilization in therapeutics : External Application** | | | |
| 3 | Sutra 3/5 | Pradeha Yoga | Kusta |
| 4 | Sutra 3/10 | Avachurna Yoga | Kusta |
| 5 | Sutra 3/12 | Pradeha Yoga | Kusta |
| 6 | Sutra 5/26 | Dhooma Yoga | Shiro Virechana |
| 7 | Chikitsa 7/114 | Kanaka Ksiri Taila | Krimi, Kandu, Kusta |
| 8 | Chikitsa 9/66 | Varti Yoga | Apasmara, Unmada |
| 9 | Chikitsa 14/56 | Lepa Yoga | Arsa |
| 10 | Chikitsa 18/69 | Dhooma Yoga | Vataja Kasa |
| 11 | Chikitsa 18/74 | Dhooma Yoga | Vataja Kasa |
| 12 | Chikitsa 25/114 | Lepa Yoga | Twak Janana |
| 13 | Chikitsa 26/196 | Pita Curna | Mukha Roga |
| **Other References** | | | |
| 14 | Sutra 1/70 | Referred as 'Alam' | Classification of Parthiva Dravya |
Table 9. References of *Manahshila* in Charaka Samhita

| Sr. No. | Reference | Formulation         | Therapeutic Uses       |
|---------|-----------|---------------------|------------------------|
|         | **Utilization in therapeutics: Internal Administration** |                       |                        |
| 1       | Chikitsa 17/77 | Dhooma Yoga         | Hikka, Swasa           |
| 2       | Chikitsa 17/145 | Manahshiladi Ghṛta | Hika, Swasa            |
| 3       | Chikitsa 18/52 | Leha Yoga           | Kasa, Hikka, Swasa     |
| 4       | Chikitsa 18/69 | Dhooma Yoga         | Vataja Kasa            |
| 5       | Chikitsa 18/71 | Dhooma Yoga         | Vataja Kasa            |
| 6       | Chikitsa 18/73 | Dhooma Yoga         | Vataja Kasa            |
| 7       | Chikitsa 18/74 | Dhooma Yoga         | Vataja Kasa            |
| 8       | Chikitsa 18/75 | Dhooma Yoga         | Vataja Kasa            |
| 9       | Chikitsa 18/130 | Dhooma Yoga       | Vataja Kasa            |
| 10      | Chikitsa 18/146 | Dhooma Yoga        | Kshataja Kasa          |
| 11      | Chikitsa 18/147 | Dhooma Yoga        | Kshataja Kasa          |
| 12      | Chikitsa 18/169 | Haritaki Leha      | Swasa, Kasa            |
| 13      | Chikitsa 20/39 | Leha Yoga           | Chardi                 |
| 14      | Chikitsa 23/55 | Mrita Sanjivani Agada | Visha              |
| 15      | Chikitsa 23/78 | Maha Gandha Hasti  | Visha                  |
| 16      | Chikitsa 26/152 | Pradhamanasya Yoga | Pinasa                 |
|         | **Utilization in therapeutics: External Application** |                       |                        |
| 17      | Sutra 3/5 | Pradeha Yoga       | Kusta                  |
| 18      | Sutra 3/10 | Avachurna Yoga     | Kusta                  |
| 19      | Sutra 3/12 | Pradeha Yoga       | Kusta                  |
| 20      | Sutra 3/12 | Pradeha Yoga       | Kusta                  |
| 21      | Sutra 3/15 | Lepa Yoga          | Kusta                  |
| 22      | Sutra 5/26 | Dhooma Yoga        | Shiro Virechana         |
| 23      | Chikitsa 3/306 | Anjana Yoga        | Visha Jvara             |
| 24      | Chikitsa 7/117 | Lepa Yoga          | Sidhma                 |
| 25      | Chikitsa 7/167 | Shamana Lepa       | Shwitra                |
| 26      | Chikitsa 7/170 | Lepa Yoga          | Kilasa                 |
| 27      | Chikitsa 23/190 | Lepa Yoga         | Sarva Shotha, Visha    |
| 28      | Chikitsa 23/192 | Lepa Yoga          | Sarva Visha            |
| 29      | Chikitsa 23/213 | Pancha Shirisha Agada | Visha hara     |
| 30      | Chikitsa 25/114 | Lepa Yoga          | Twak Janana            |
| 31      | Chikitsa 26/196 | Pitaka Churna      | Mukha Roga             |
| 32      | Chikitsa 26/235 | Varti Yoga         | Netra Roga             |
| 33      | Chikitsa 26/250 | Anjana Yoga        | Netra Roga             |
| 34      | Chikitsa 26/252 | Sukhavati Varti    | Netra Roga             |
|         | **Other References** |                       |                        |
| 35      | Sutra 1/70 | Classified under Parthiva Dravya |   |
Anjana Dravyas are those, which are employed as collyrium in eye diseases or otherwise. The importance of Anjana in daily routine has been recognized since vedic times. Anjana is an important part of Dinacharya (Charaka). Rasavagbhata mentioned five different types of Anjanas. Detailed descriptions of these five are not found available in Charaka Samhita except information on very few. Sauveeranjana is a lead containing mineral with a chemical formula of PbS with Pb (> 50%). This mineral has been equated with Stibnite by few other scholars. This mineral has been preferred occasionally in therapeutics (Table 10).

The screening reveals that, Anjana Yogas are very rarely mentioned in Charaka Samhita. Anjana has been clarified as Sauveeranjana by Chakrapani at Sutra 1/70. It has also been mentioned that, Suveeranjana is the one found on the river banks of Suveera should be considered as Sauveeranjana (Sutra 5/15).

In addition to Sauveeranjana; other forms of Anjanas like Srotonjana (Chikitsa 20/29), Rasanjana (Sutra 5/15), Pushpanjana (Chikitsa 26/250) are also found mentioned in this classic.

| Sr. No. | Reference | Formulation | Therapeutic Uses |
|---------|-----------|-------------|------------------|
| 1       | Sutra 3/5 | Pradeha Yoga | Kusta, Kilasa, Dadru |
| 2       | Sutra 5/15| Anjana Yoga  | Netra Roga       |
| 3       | Chikitsa 26/250 | Sukhavati Varti | Timira Netra Roga |

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4 Sutra 1/70 Classified under Parthiva Dravya

Conclusion

The screening reveals that mineral preparations occupied a significant place in Ayurvedic therapy since antiquity. Overall, it is found that, Acharya Charaka mentioned three Maharasas (Makshi, Shilajatu and Sasyaka) and all eight Uparasas (Kankushita) in his classic. Interestingly, information on Sadharana rasas was not found in the classic. In addition to these minerals; information on certain salts (lavana dravya), alkaline substances (ksara dravyas) and calcium containing material (jantava dravya) etc. are also found available in Charaka Samhita. These groups were not screened in the current attempt.

Charaka advocated utilization of these preparations with great conviction. In recent past, most of the western scientists focus on the toxic nature of metals and minerals like Mercury, Lead, Arsenic etc. A review of Ayurvedic literature reveals that the ancient scholars were aware of this fact and devised various methods such as Shodhana to rid them of their adverse effects, if any.

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