



Contributions Of *Charaka Samhita*, *Sushruta Samhita* And *Astanga Hrudaya* In The Field Of *Rasashastra* (Indian Alchemy).

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ABSTRACT

Ayurveda is science of life. *Ayurveda* not only focuses on curing of diseased individual but also gives importance to maintenance of health of healthy person¹. *Ayurveda* is basically divided into eight branches based on specific field of expertise². Among these *Rasashastra* is not counted as a main branch as it was initially considered as an independent pharmaceutical science. It is study of use of metallic and mineral compounds for preparation of mineral and Herbo mineral formulations. The origin of *Rasashastra* has its roots in the “Indian Alchemy”. Alchemy was a form of chemistry studied in medieval period where in people tried to discover different ways to convert lower metals to higher metals. Historical development of *Rasashastra* can be traced to *Vaidika(veda)* period, *Samhita* period, *Sangraha Kala* and *Adhunka* (Present) period. In *Samhita* period many treatises give references regarding *Rasashastra*, *Rasa dravya* and their preparations. *Charaka Samhita*, *Sushruta Samitha* and *Astanga hrudaya* are the main treatise of *Samitha* period.

In this Review article, an attempt was made regarding unveiling the references of *Rasashastra* (Indian alchemy) from *Bruhatrayis*. The references from each *Samhitas* related to the field of Indian alchemy is gathered and listed in this review article.

KEY WORDS: *Rasashastra*, Alchemy, *Ayurveda*, *Samhita*.

INTRODUCTION

Ayurveda is science which imparts the knowledge of life. It defines health and factors responsible for its maintenance and promotion. Health is essential for enjoyment of all the worldly pleasures in righteous manner *Ayurveda* not only aims at curing of diseased but also gives importance to maintenance of health of healthy person¹. *Ayurveda* is basically divided into eight branches based on specific field of expertise in treating of diseased individual². Under the four pillars of successful treatment, drug is a tool of *Vaidya*. Drug used may be of herbal, mineral or herbomineral origin³. *Rasashastra* (Indian Alchemy) is a supportive branch to *Astanga Ayurveda* which has its roots from *Vedic* period and was Developed in medieval period (8-9th century). *Rasashastra* is study of use of metallic and mineral compounds for preparation of mineral and Herbo mineral

formulations. Mercury, the liquid metal which seems to have been originally used in tantric rituals and referred in *Ayurvedic* classics, came into extensive therapeutic usage during 8th century A.D. With extensive and intensive mercurial operation of nearly ten centuries was found to give no results, gold remaining elusive and immortality only a dream, many of the intermediary products of alchemical process are found to possess medicinal properties. The minerals, metals, alkalies and salts were administered either singly or in combination with herbal drugs for different diseases. Many new recipes could thus be formulated appropriate to the disease. All such preparations came to be called as *Rasayana*. Slowly *Rasayana tantra* incorporated into *Ayurveda* as a backbone in name of *Rasashastra*. Alchemy was a form of chemistry where in people tried to discover different ways to convert lower metals to higher metals. Historical development of *Rasashastra* can be traced to *Vaidika* (veda) period, *Samhita* period, *Sangraha kala* and *Adhunik*(Present) period. In *Samhita* period many treatises give references regarding *Rasashastra*, *Rasadravya* and their preparations. The *Ayurvedic* classics like *Charaka Samhita*, *Sushruta Samhita* and *Astanga Hrudaya* recognised as *Brihat Trayees* has mentioned many mineral drugs, Herbo mineral formulations in the management of various diseases.

The new change reflected in the literature from post 13th century A.D. Works of post *Vagbhata* period, reflect the development of science. The period between 800 and 1110 A.D. described as evolutionary era. During this period good number formulation consisting of minerals and metals have been incorporated into the *Ayurvedic* therapeutics. Even though the development was seen in post *Samhita* period, *Samhitas* play a vital role in introducing Field of *Rasashastra* and its expertise to the society.

CHARAKA SAMHITA:

Charaka Samhita is also known as *Agnivesha Tantra* as it was originally composed by *Agnivesha*. It was then redacted by *Charaka* and became famous as *Charaka Samhita*. It was then completed by *Drdhabala* in 4th century.

Time period: 200-400 BC

There are scattered references about knowledge of *Rasashastra* in *Charaka Samhita*. Total 34 metals and minerals are mentioned in *Charaka Samhita*.

Sutrasthana⁴:

- ❖ *Cha.Su. 1(Deerghanjiviteeya Adhyaya)* – In *Dravya Vargikarana -Aaudbidadravya, Jangamadravya* and *Parthivadarvya*, and further in context of *Parthiva Dravyas* there is mentioning of *Suvrna, Rajata, Tamra, Tarpu(vanga), Sisa, Manahshila, Hartala(Taala), Mani, Lavana, Gairika, Anjana*.
- ❖ *Cha.Su.2(Apamargha Tanduleeya Adhyaya)* – *Kampillaka* is considered as *Virechana Dravya*.
- ❖ *Cha.Su.3 (Araghvadeeya Adhyaya)- Manashila, Kasisa, Sasyaka, Haratala* are mentioned under *Bahirparimarjana dravyas* with herbal drugs as *lepa*.
- ❖ *Cha.Su.5 (Matrasheeteeya Adhyaya)- Application of Sauviranjana* daily and *Rasanjana* once in 5 or 8 days in *Dinacharya*.
Mukta is considered as *Jeevaniya* and *Muktha maalaa dharana* is advised in *Greeshma rutu vihara*.
- ❖ *Cha.Su.11(Tistraishaneeya Adhyaya)- Mani dharana* is told in *Daiva vyapashraya chikitsa*.
- ❖ *Cha.Su.15 (Upakalpaniya Adhyaya)- Vessels* made out of metals are told to be used for *panchakarma* procedures.
- ❖ *Cha.Su.21(Astauninditiya Adhyaya)- Teekshna loha* is told to be *Shresta Dravya* for *Sthaulya chikitsa*.
- ❖ *Cha.Su.26 (Atreyabhadrakapiya Adhyaya)- Shilajitu* in combination of milk is indicated in *Mada, moorcha*.

Sharirasthana:

- ❖ *Cha.Sha.8 (Jaatisutreeya Sharira)⁵*- In *Pumsavana samskara*, *purushakruti* of *Swarna* and *Rajata* were used for *nirvapana* in *Godugdha*. (verse 19)

In *Sadhya prajata upachara*, cutting of umbilical cord by the instruments made up of gold and silver.

Swarna prashana is also explained.

Chikitsasthana⁶:

- ❖ *Cha.Chi.1(Rasayana adhyaya)*: *Rasa dravyas* like *Swarna*, *Rajata*, *Loha* etc are used in different *Rasayana yogas*.

- *Brahma Rasayana* contains *Swarna*, *Rajata*, *Tamra* and *Pravala* 1/8th part of total ingredients.
- *Bhallataka* which is a *Visha Dravya* is used as a *Rasayana*, 10 *Kalpas* of it are explained like *Taila*, *Ksheera*, *Ghritha* etc are explained.
- *Haritakyadi Rasayana* contains *Loha churna*.
- Consumption of *Amalakyadi churna* with *loha churna*, *Madhu*, *Ghritha* acts as *Rasayana*.
- *Lauhadi Rasayana* is explained
- Preparation of *Ayaskriti* of *Loha* which is followable for *Swarna*, *Rajata* and *Tamra* etc is explained.
- *Indra Rasayana* contains *Swarnaraja*
- *Triphala rasayana* contains *Swarna*, *Ayoraja* or even *Raja* of all *Dhatus*.
- *Shilajitu* has been explained in details including its types properties, *doshas*, *anupana* and various *bhavana dravyas*.
- *Shilajitu* is said to cure all diseases.
- *Indrokta Rasayana* contains *Swarna*, *Pravala*, *Ayas*, *Sphatika*, *Mukta*, *Vaidurya* and *Rajata Churna*.

- ❖ *Cha.Chi.3 (Jwara Chikitsa Adhyaya)*- Touch of *Swarna* is helpful for *Daha* in *Jwara*.

- ❖ *Cha.Chi.4 (Raktapitta chikitsa Adhyaya)*- *Sparshana* of *Vaidurya*, *Mukta* and usage of the vessel of same materials is advised.

- ❖ *Cha.Chi.6 (Prameha chikitsa Adhyaya)*- *Bhallatakasava* is told.

- ❖ *Cha.Chi.7 (Kustha chikitsa Adhyaya)*- *Trapavadi lepa* told for *Mandala kushta* contains *Swarnamakshika*, *shilajitu* etc.

Many *Taila*, *Ghritha*, *Lepa yogas* containing *Kasisa*, *Manashila*, *Haratala*, *Sasyaka*, *Kampillaka*, *Swarnamakshika*, *Rasaanjana* are mentioned.

- ❖ *Cha.Chi.13 (Udara Chikitsa Adhyaya)*- *Kampillaka* is used as *Rechaka* in *Udara roga*, *kamala* and *Jalodara*.

- ❖ *Cha.Chi.15 (Grahani Chikitsa Adhyaya)*- *Bhallataka Kshara* is used in *Grahani roga*.

- ❖ *Cha.Chi.16 (Panduroga Chikitsa Adhyaya)*- *Ayoraja* with *Gomutra/Godugdha* is advised in *Panduroga*. *Yogas* like *Navayasa churna*, *Mandura yoga*, *Yogaraja*, *Swarnamakshika yoga*, *Rajata makshika* (mentioned as *roupyamala*), *Shilajatu vataka*, *Punarnavadi Mandura* are explained.

- ❖ *Cha.Chi.17 (Hikka Shwasa Chikitsa Adhyaya)*- *Muktadya churna* containing *Mukta*, *Pravala*, *Vaidurya*, *Shankha*, *Sphatika*, *Gandhaka*, *Tamra*, *Ayoraja*, *Roupya*, *Kasisa*, *Manikya* has been explained.

- ❖ *Cha.Chi.18 (Kasa Shwasa Chikitsa Adhyaya)*- *Manashila*, *Haratala* used as *dhooma*.

- ❖ *Cha.Chi.21(Visarpa Chikitsa Adhyaya)*- *Swarnamakshika* and *Shilajatu* used in *Granthi Visarpa*. *Kampillaka* is used for *Rechana*.

Agnikarma is to be done with *Swarna* in *Granti Visarpa*.

Mukta pishti, Shankha, Pravala, Gairika used as *pradeha* with *Ghrita* in *Visarpa Chikitsa*.

- ❖ Cha.Chi.22 (*Trishna Chikitsa Adhyaya*)- *Viharartha Manihaara (Maala Dharana)* is mentioned.
- ❖ Cha.Chi.23 (*Visha Chikitsa Adhyaya*)- *Manashila, Mukta pisti, Shilajatu, Gandaka, Swarna churna* are used as many *Agadas*.

Use of *Tamra Churna, Kankshi, Loha* as *Vamakaraka Dravya* for *Hridaya Shodana*.

- ❖ Cha.Chi.25 (*Dwivraneeya Chikitsa Adhyaya*) – *Kampillaka Taila* for *Vrana Ropana*.
Shukti churna, Ayoraja, Kasisa, Gairika, Sasyaka are used as *Vranashodaka* and *Ropaka*.

Use of *Parada* in *Savarneekarana* with herbal drugs and *Bhavana* with *Gomayarasa* for external use are mentioned.

- ❖ Cha.Chi.26 (*Trimarmiya Chikitsa Adhyaya*)- *Ayoraja* is used in *Ashmari Chikitsa*.
Shilajatu as *Rasayana* in *Kaphaja Hridroga*.

Manashila is used in *Kaphaja Pratishyaya (Nasya)*.

Peetaka Churna containing *Manashila*, said to be *Shresta* in *Mukha Roga*.

In *Mukha Roga* use of *Tamra, Samudraphena* and *Kukkutanda Twak* is mentioned.

In the Context of *Khalitya, Palitya, Mahaneela Taila* which contains *Anjana, Kasisa Loha* etc is indicated.

- ❖ Cha.Chi.29 (*Vatarakta Chikitsa Adhyaya*)- *Mani sparshana* is indicated as *Dosha Shamaka* and *Shilajitu* is considered as *Vishista Dravya* for *Vatarakta*.
- ❖ Cha.Chi.30 (*Yonivyapat Chikitsa Adhyaya*)- *Kasisa, Ayoraja, Rasanjana, Gairika* are mentioned in different *yogas*.

Kalpasthana:

- ❖ Cha.Kal.12 (*Danti Dravanti Kalpa Adhyaya*)⁷- *Kampillaka* is used for *Virechana* with herbal drugs combination.

Siddhistana:

- ❖ Cha.Sid.3 (*Bastisutriya Siddhi Adhyaya*)⁸- *Basti netra* is made up of *Swarna, Rajata, Trapu* etc.

SUSHRUTA SAMHITA:

Acharya Sushruta is the author of *Sushruta Samhita*. *Prathisamskarana* of this treatise was done by *Acharya Nagarjuna* and *Pathasuddhikarana* by *Acharya Chandrata*.

Acharya Sushruta is also known to the world as “Father of Surgery.”

Time period: 500-600BC

Scattered References about the knowledge of *Rasashastra* is seen in the text of *Sushruta Samhita* which are gathered.

Sutrastana⁹:

- ❖ Su.Su.26 (*Pranastha Shalya Vijnaniya Adhyaya*)- It has been explained that when metals ie *shalya* like *Kanaka, Rajata, Tamra, Trapu, Seesa* is left within the body, it liquify by the heat consistently supplied within the body due to *Pitta* and attains *leenata* within the *Dhatus*.
Drugs like *Manashila, Haratala, Kasisa, Kankshi, Kukkutanda Twak, Pravala* and *Dhatu churnas* are used for *Vrana Utsadana Shodana, Ropana*.
- ❖ Su.Su.38 (*Dravya Sangrahana Adhyaya*)- *Anjanadi, Trapvadi Gana* Contains, *Trapu, Sees, Tamra, Krishna Loha, Swarna* and are indicated in diseases like *Krimi, Visarpa, Hridroga* and *Panduroga*.
In *Ooshakadi gana*, which contains *Ooshaka, Saindava, Shilajatu, Kasisadwaya, Hingula, Sasyaka* are indicated in *Medoroga, Ashmari* and *Mutrakricha*.
- ❖ Su.Su.45 (*Dravadravyadi Vidhi Adhyaya*)- Method of heating water is told by *Nirvapa* of *Ayapinda (Loha)*.
Swarna, Rajata, Tamra, Kamsya, Mani are mentioned to be useful for making vessels.
Shodhana of Dushita Jala by *Garudamani, Sphatika* is described.
- ❖ Su.Su.46 (*Annapana Vidhi Adhyaya*)- *Rasa, Guna, Veerya, Vipaka* and *Karma* of *Swarnadi Dhatus* and *Ratnas* as *Doshahara, Krimihara, Sheeta* and *Chakshushya* has been told.

Sharirastana¹⁰:

- ❖ Su.Sha.10 (*Garbhini Vyakarana Adhyaya*)- After the birth of a child, Administration of *Swarna bhasma* mixed with *Madhu* and *Ghritha* is mentioned for promotion of strength, memory of child.
- ❖ *Swarna Churna* with *Madhu, Ghritha* and *Shankapushpi* is also mentioned as *Medya Rasayana*.

Chikitsasthana¹¹:

- ❖ Su.Chi.2 (*Sadyovraniam Chikitsa*)- *Manashila, Haratala, Kasisa, Sasyaka* are mentioned for *Vranashodhana* and *Ropana*.
- ❖ Su.Chi.4 (*Vatavyadi Chikitsa*)- Special vessels of *Swarna, Rajata* for storing *Vatahara Tailas*.
Gairika with *Ghritha* used as *lepana* in *Pittapradhana Vatarakta*.
Gomutra with *Shilajatu* in *Urusthamba* has been mentioned.
- ❖ Su.Chi.6 (*Arsha Chikitsa*)- *Loha, Shringa* are indicated. *Kasisa, Saindava* are used in post-surgery wound.
- ❖ Su.Chi.7 (*Ashmari Chikitsa*)- *Ooshakadi Gana Dravyas* ie *Kasisa, Saindava, Kshara* are mentioned for *Lekhana Basti*.
- ❖ Su.Chi.9 (*Kushta Chikitsa*)- *Bhallataka, Shilajitu, Makshika, Ayaskriti* are used in *Medhoroga* and *Kusta*.
Samudraphena, Sasyaka, Haratala, Manashila, Gorochana, Rasanjana, Swarnamakshika, Loha churna, Kampillaka are used in treating different types of *Kushta* and *Shwitra*.
Loha Churna is one of the ingredients of *Neelaghrita* which is indicated in *Sarvakushta* and *Asadhya Kushta*.
- ❖ Su.Chi.10 (*Mahakushta Chikitsa*)- *Ayoraja* and other *dhatu*s prepared by *Ayaskriti* method are emphasised upon as *Mahaushadi* for *Mahakusta*.
- ❖ Su.Chi.12 (*Prameha Chikitsa*)- *Saalaasaaradi Gana* containing *Tamra Churna*. *Navayasa Loha* is indicated in *Prameha* and *Prameha Pidaka*. Usage of *Shilajitu* is explained.
- ❖ Su.Chi.14 (*Udara Chikitsa*)- *Shilajitu* is indicated in *Udara roga*.
- ❖ Su.Chi.17 (*Visarpa Nadivrana Stanaroga Chikitsa*) – In *Visarpa, Nadi Vrana, Sthana Roga chikitsa*, Use of *Mukta, Gairika* with Milk is specified.
Tamra, Ayas, Haratala, Manashila, Kasisa, Sasyaka are mentioned in *Arbuda Chikitsa*.
- ❖ Su.Chi.25 (*Mishraka Chikitsa*)- *Parada, Haratala, Manashila* are used in *Mukhakanti Vriddhakara Ghritha*

- ❖ Su.Chi.28 (*Medhayuskamiya Rasayana Chikitsa*)– Swarna is used with many combinations as *Rasayana*.
- ❖ Su.Chi.38 (*Niruhopakrama Chikitsa*)– Ooshakadi Gana Dravyas in *Lekhana Basti* and *Rasanjana* in *Shamana Basti* are incorporated.

Kalpasthan¹²:

- ❖ Su.Kal.2 to 6 – Deals with *Vishas*. Here *Tamra*, *Kasisa*, *Manashila*, *Haratala*, *Gairika*, *Shilajatu* are used for the preparation of *Agadas*.

Uttaratanra¹³:

- ❖ Su.Ut.9 (*Vata abhishyanda Pratishedam Adhyaya*) In *Abhishyanda Chikitsa* by using *Gairika*, *Swarna*, *Rajata*, *Shankha*, *Mukta*, *Rasanjana*, *Tamra*, *Haratala*, *Manashila*, *Kasisa*, *Sasyaka*, *Gorochana*, *Samudraphena* etc along with herbal drugs are used for *Anjana*.
- ❖ Su.Ut.14,15,17,18,22 – Drugs like *Gairika*, *Swarna*, *Rajata*, *Shankha*, *Mukta*, *Rasanjana*, *Tamra*, *Haratala*, *Manashila*, *Kasisa*, *Sasyaka* are used in treating various *Urdhwajatrugata Vikaras*. *Navaratnas* are explained in some formulations. *Manashila*, *Haratala* are used in form of *Nasya* in *Shiroroga*.
- ❖ In *GrahaBhada Pratishedha*: For *Lepana* and *Balikarma*, *Shanka churna*, *Haratala*, *Manashil*, *Rasanjana*, *Kampillaka*, *Parada* are used.
- ❖ Su.Ut.39 (*Jwara Pratishedam Adhyaya*) -In context of *Jwara Chikitsa*, *Mahakalyanaka Ghrita* contains *Swarna*, *Manashila*, *Saindava* with *Tila Taila* mentioned in *Vishamajwara*. *Rasanjana*, *Gairika*, *Shankha* are indicated in *Pittaja Jwara*.
- ❖ Su.Ut.40 (*Atisara Pratishedam Adhyaya*) -*Rasanjana* is used in *Atisara Chikitsa*. In *Ahara Vidhi*, a unique method is explained for *Pravahika*, ie Red hot *Shuddha Swarna* is said to be dipped in Milk and Taken with *Madhu* in dose of 1-2 *tolas*.
- ❖ Su.Ut.41(*Sosha Pratishedam Adhyaya*)- *Shilajitu* is indicated in *Yakshma Chikitsa*.
- ❖ Su.Ut.42(*Gulma Pratishedam Adhyaya*)- In *Gulma* and *Shoola Chikitsa*, *Rajata*, *Tamra*, *Mani* tubes which are filled with water and said to be placed over the site of pain.
- ❖ Su.Ut.44(*Pandu Pratishedam Adhyaya*)- In *Panduroga Chikitsa*, *Ayoraja vyoshada avaleha*, *Triphaladi choorna* (which contains *Loha churna*), *Pravaalaadi yoga* (which contains *Pravala*, *Mukta*, *Shanka*, *Swarna* and *Gairika*), *Mandura yoga* (which contains *Mandura*, *Swarna*, *Makshika*) is explained. In *Kamala Chikitsa* with all *yogas* mentioned above in *Pandu chikitsa*, special *Mandura Guda* is also mentioned.
- ❖ Su.Ut.46(*Murcha Pratishedam Adhyaya*)- *Mani dharana* is mentioned in *Murcha*. *Shilajitu* used along with *Sharkara* in *Sanjnanaasha* and *Sanyasa*.
- ❖ Su.Ut.48(*Trishna Pratishedam Adhyaya*)- *Trishna Hara Jala* is prepared by *Nirvapana* of *Swarna*, *Rajata patra* and consumed with *Sharkara* and *Madhu*.
- ❖ Su.Ut.50(*Hikka Pratishedam Adhyaya*)- *Manashila* is used in the form of *Dhuma* in *Hikka*, *Shwasa Kasa chikitsa*.
- ❖ Su.Ut.54 (*Krimiroga Pratishedam Adhyaya*) -*Surasadi Gana Bhavita Kamsaya Churna* in *Krimi* as *Dhmapana Nasya Yoga*.
- ❖ Su.Ut.55 (*Udavarta Pratishedam Adhyaya*) -*Kampillaka* is used in treating *Udavarta*.
- ❖ Su.Ut.59 (*Mutrakrcchra Pratishedam Adhyaya*) -*Shilajitu* and *Ushakaadi gana Dravyas* are indicated in *Mutrakrichra*.

ASTANGA HRUDAYA

Astanga Sangraha was written by *Acharya Vrddha Vagbhata* (6th century AD). And later the concised version of same was written by *Acharya Laghu Vagbhata* and named it as *Astanga Hrdaya*. So the theory put forward in both books are from the same base.

In *Astanga Hrdaya* we can find topics explained as in *Charaka* and *Sushruta Samitha* in consided, simple and practically adaptable way.

Time Period: 500-700AD

During the era of this book the scope for *Rasashastra* or *Dhatu Shastra* had become more evident.

Sutrastana¹⁴:

- ❖ A.H.Su.2 (*Dinacarya*)- Utility of *Sauviranjana* is explained. *Rasanjana* is used as *Mriduvirechaka*. *Sauviranjana* and *Srotoanjana* is said to have *Vishahara* property.
- ❖ A.H.Su.6 (*Annaswarupa Vijnanaadhyaya*)- In *aushada varga* context *Lavana* and *Kshara* are explained.
- ❖ A.H.Su.7 (*Annarakshavidhi Adhyaya*)- *Tamra* and *Swarna* administered for *Vishachikitsa*.
- ❖ A.H.Su.15 (*Sodhanadi Gana Sangraha*)- Under *Ushakadi Gana*- *Kasisadwaya*, *Saindava*, *Shilajitu*. It is said to cure *Mutrakricha*, *Ashmari*, *Gulma*, *Medoroga* and *Kapharoga*. *Kampillaka* is mentioned under *Nikumabhadigana* for *Virechana*.

Chikitsasthana¹⁵:

- ❖ A.H.Chi.3 (*Kasa Chikitsa*)- *Rasanjana* is used in many *lehas*. *Haratala* and *Manashila* are used as *Dhuma*.
- ❖ A.H.Chi.11 (*Mutraghata Chikitsa*)- *Pashanabhedaghrita* contains *Ooshakadigana* drugs. *Shilajitu* is used in many *yogas*.
- ❖ A.H.Chi.12 (*Prameha Chikitsa*)- *Ayaskriti* and *Navayasa loha* is explained.
- ❖ A.H.Chi.14 (*Gulma Chikitsa*)- *Kampillaka* is an ingredient in *Neelinighrita* for *pittajagulma*. *Ayaskriti* is mentioned in *Udara Roga*. In *Pleeharoga*, *Kshara* and *Shukti* are used.
- ❖ A.H.Chi.16 (*Panduroga Chikitsa*)- *Yogas* like *Manduraloha*, *Tapyadiloha* and *Vyoshadi Vati* are mentioned. *Kamala Chikitsa* include *Gairika*, *Shilajitu*, *Makshika* administered with *Gomutra*.
- ❖ A.H.Chi.18 (*Visarpa Chikitsa*)- In *pittaja Visarpa*, *Lepana* with *Pishti* of *Mukta*, *shankha*, *Pravala*, *Shukti*, *Gairika* with *Ghrta*. For *Granthi Bhedana lepa* containing *Kasisa*, *Bhallataka*, *Shilajitu* and *Swarnamakshika* *Hemadidhatus* are used for *Agnikarmas*.
- ❖ A.H.Chi.19 (*Kushta Chikitsa*)- *Bhallataka taila pana* is said to cure all types of *Kushta*. *Gandhaka* is used in creating *Kshudrakushta*. *Avadharana churna taila* contains *Bhallataka*, *Mandura*, *Sindhura*, *Shilajitu*, *Samudraphena*, *Manashila*, *Haratala*, *Kasisa*, *Kampillaka*. Vessels of *Tamra* is used for such preparation.
- ❖ A.H.Chi.20 (*Shwitra Chikitsa*)- Use of *Bhallataka* with *Snuhi Ksheera* and *Haratala* are explained.
- ❖ A.H.Chi.22 (*Vatarakta Chikitsa*)- Use of *Shilajitu* with milk is said to be best *Rasayana*.

Uttarasthana¹⁶:

- ❖ A.H.Ut.1 (*Baalaparicharaniya Adhyaya*)- *Nabhichedhana* by *Shastras* made of *Dhatus*. *Taptarajatalipta jala* for bath is mentioned. *Swarnaprashana Vidhi* is advised and *Swarna* is said to increase *Medha*, *Varna*, *Bala* etc. On the 10th day, *Namakarana*, *Lepana* of *Haratala*, *Manashila*, *Gorochana*, *Chandana* to the body is mentioned.

Dharanartha Mani are advised to use.

- ❖ A.H.Ut.2 (*Baalaamaya Pratisheda*)– Deals with *Baalaroga* which starts with the use of *Rasanjana* with *Madhu*.
Kasisa, Shankha, Sasyaka, Haratala, Gorochana are used in many yogas.
- ❖ A.H.Ut.5 (*Bhuta Pratisheda*) –*Hingvadi yoga* contains *Haratala, Manashila, Anjana* with herbal drugs.
- ❖ A.H.Ut.6 (*Unmada Pratisheda*)– *Kankshi* is used in form of *Dhuma*.
- ❖ A.H.Ut.9 (*Vartmaroga Pratisheda*)– Different types of *Vartis* are prepared by using *Tamaraja, Loharaja*.
- ❖ A.H.Ut.11(*Sandhisthitarogapratisheda*) – *Kasisa, Tamra, Loha* are used in *Puyalasa*.
In *Krimigrantichikitsa, Triphaladi yoga* contains *Kasisa, Manashila, Anjana, Gairika, Ratnas, Shankha, Tamrachurna* are also used.
- ❖ A.H.Ut.13 (*Timirarogapratisheda*) – Gives important use of *Andhamusha* for preparation of *Tapyadi, Tutthadi, Bhaskaranjana*.
Tapyadi, Loha, Swarna, Rajata, Srotonjana, Vaidurya, Mukta, Samudraphena, Manashila, Anjana, Gandhapashana, Naga, Vanga, Gairika are found in many yogas.
- ❖ A.H.Ut.14 (*Linganasha Pratishedha*) – *Pindanjana* contains *Vaidurya, Mukta, Samudraphena, Manashila, Pravala* which is applied over *Tamrapatra* and used after 7 days.
- ❖ A.H.Ut.16 (*Sarvaakshiroga pratisheda*)- *Swarna, Gairika, Rasanjana, Manashila, Tamrapatra, Rajatapatra, Shankha, Kasisa, Loha, Sasyaka* are used in variety of *Vatis*.
- ❖ A.H.Ut.18(*Karna Roga Pratishedha*)– In Various *Taila* preparation, *Rasanjana, Samudraphena* and *Swarna gairika* are used.
- ❖ A.H.Ut.22 (*Mukharoga pratisheda*)- Use of *Sasyaka, Kasisa, Rasanjana* and *Gairika* can be seen.
Khadiradi Vati contains *Rasanjana, Swarna Gairika* and *Manashila*
Kalakachurna contains *Rasanjana, Lohabhasma* with *Yavakshara, Trikatu*.
Pratisaranakwatha has *Haratala, Manashila, Yavakshara* used for *Gandusha* with *Madhu* and *Ghritha*.
- ❖ A.H.Ut.25 (*Vrana Pratishedha*) – *Vranaropanataila* contains *Kankshi, sasyaka*.
Shodhana Lepa contains *Manashila, Parada*.
Jatyadi Taila contains *Sasyaka*.
- ❖ A.H.Ut.30 (*Arbhuda, Grathi, Apachi Pratisheda*)- *Chandanadi Taila* contains *Haratala, Manashila, Arkadughda* which is administered in form of *Nasya, Abhyanga*.
- ❖ A.H.Ut.32 (*Kshudra Roga Pratisheda*) – *Haratala, Manashila* and *Kasisa* are used.
Manjistadi Taila contains *Spathika, Haratala, Manashila, Gairika, Parada* and *Sasyaka*.
- ❖ A.H.Ut.34 (*Guhyaroga Pratisheda*) – *Haratala, Manashila, Gairika, Sasyaka, Rasanjana* are used.
- ❖ A.H.Ut.35 (*Vishapratisheda*) – *Chandrodaya agadha* contains *Haratala, Manashila*.
Use of *Swarna* in *Garavisha* is mentioned.
- ❖ A.H.Ut.36 (*Sarpavishachikitsa*) –*Damshadahana* by *Taptahemadi Loha*.
Vajra Agada contains *Parada, Manashila*.
Haratala is used as *Anjana* in *Vrischika Visha*.
- ❖ A.H.Ut.39 (*Rasayana Vidhi*)–*Loha* is used in *Triphaladi Rasayana, Swarna* in *Panchavidha Rasayana* and *Brahmi Rasayana, Bhallataka* is said to be *Rasayana* itself, *Loha* is used in *Bakuchi Rasayana Shilajitu*- Types, *Grahya lakshana, Pathya, Guna, Shresta* and *Prayoga Vidhi* of *Shilajitu* is explained.
Loharaja and *Vidanga*, consumed for one year acts as *Rasayana*.
Combination of *Shilajitu* with *Madhu, Vidanga, Ghritha, Loha, Haritaki, Parada, Tapyadi* when consumed replenishes the debilitated tissues of the body within 15 days like moon.
Langali, Loharaja, Triphala bhavana with *Bhringaraja swarasa* given for one year can cure *Asadhya Vyadis*.
- ❖ A.H.Ut.40 (*Vajikarana Vidhi*)– *Shresta Aushadhi* for some Diseases are mentioned-
In *Mutraroga- Shilajitu, Pandu- Loha, Arsha- Bhallataka, Garavisha- Hema, Sthula- Tarkshya, Sarvaroga- Shilajitu*.

	CHARAKA	SUSHRUTA	AST. HRU
MAHARASA	Swarna Makshika, Rajata Makshika, Shilajatu, Tuttha	Swarna Makshika, Shilajatu, Tuttha.	Swarna Makshika, Rajata Makshika, Shilajatu, Tuttha, Abhraka.
UPARASA	Gandhaka, Gairika, Kasisa, Kankshi, Haratala, Manashila, Anjana.	Gandhaka, Gairika, Kasisa, Kankshi, Haratala, Manashila, Anjana, Kankushta	Gandhaka, Gairika, Kasisa, Kankshi, Haratala, Manashila, Anjana, Kankushta
SADHARANA RASA	Kampillaka	Kampillaka, Gouripashana	Kampillaka, Gouripashana
DHATU VARGA	Swarna, Rajatha, Tamra, Loha, Mandura, Naga, Vanga.	Swarna, Rajatha, Tamra, Loha, Mandura, Naga, Vanga	Swarna, Rajatha, Tamra, Loha, Mandura, Naga, Vanga
MISHRA LOHA	Pittala, Kamsya.	Pittala, Kamsya.	Pittala, Kamsya.
SUDHA VARGA	Sudha, Shankha, Samudraphena, Kukkutanda Twak.	Sudha, Shankha, Shukti, Samudraphena, Kukkutanda Twak.	Sudha, Shankha, Shukti, Samudraphena, Kukkutanda Twak.
RATNA VARGA	Manikya, Mukta, Pravala, Tarkshya, Heeraka, Gomeda, Vaidurya.	Manikya, Mukta, Pravala, Tarkshya, Heeraka, Gomeda, Vaidurya.	Manikya, Mukta, Pravala, Tarkshya, Heeraka, Gomeda, Vaidurya.

DISCUSSION:

In Charaka Samhita-

- Rasadravyas are explained under *partheeva Dravyas* (C.Su.1/71)
- Concept of *Shodhana* of *Dhatus* are found.
- Internal usage of Metals is explained in *Rasayana Prakarana*.
- Reference of *Lauhadi Ayaskriti* found in 1st chapter 3rd pada of *Chikitsa Sthana*.
- Metals are also said to be administered in form of *Sukshmachurna* (C.Chi1-3/46 & 1-4/22)
- In *Pumsavana samskara*, *purushakruti* of *Swarna* and *Rajata* were used for *nirvapana* in *Godugdha*.
- In *Raktapitta chikitsa* internal usage of *Ratnas* are mentioned (C.Chi4/79)
- Gold is told as *Vishahara Dravya* in context of *Gara Visha* as presence of *Hema* is the body immediately checks the effects of all types of poison.
- *Basti netra* prepared with *Swarna, Rajata, Trapu, Tamra, Riti, Kansya* (Cha.Si.3/7) .
- *Shilajitu* is explained in detail (C.Chi 1-3/48-62) and also told at there is no disease in this universe which is not effectively cured by *Shilajitu*.
- *Gandhaka, Parada & Suvaranamakshika* has been used as *Lepana* in *Kushtha Chikitsa* (Cha.chi.7/70).
- *Muktadichurna* in *Hikka, Shwasa*.

In Sushruta Samhita-

- *Rasadravyas* are explained under *Partheeva Dravyas*.
- Two types of *Lohas* are explained- *Teekshna* and *Kaala*
- Mentioned 3 different methods of *Ayaskriti* according to treatment (Su.Chi.10/11-12)
- *Loha danda* heated in the fire of *Veebhitaki Kaasta* should be dipped in cows' urine for 8 times and then after powdering it is said to be licked with honey.
- Internal administration of *Dhatus* is mentioned.
- Among 37 *ganas* *Ooshakadi* and *Trapwadi gana* contains metals and minerals.

- *Swarnaprashana* is mentioned in *Sadhyojata*.
- 2 types or varieties of *Kasisa*, *Anjana* and *Makshika* is explained.
- *Anjana* is not only explained in *Akshiroga*, also used internally to treat *Vrana* and *Raktapitta* (Su.Su.38/82 & Su.Su 45/31)
- Mentioning of *Srotoanjana* available in *Sindu desha* as *Shresta* (Su.Chi.24/18)
- In Su.Su 46/323 6 Types of *Kshara* i.e. *Yavakshara*, *Sarjakshara*, *Ooshaka Kshara*, *Paamika Kshara*, *Tankana Kshara* and *Prabhuti Kshara*.
- *Gandhaka* is explained in the context of *Mahavajraka Taila*.
- Properties of *Dhatu* like *Swarna*, *Rajata*, *Tamra*, *Loha*, *Trapu*, *Kansya*, *Sisa* (Su.Su. 46/332)
- *Phenashma* is introduced for first time. *Phenashma* with *Haratala* is included in *Dhatu Visha* (Su.Ka 2/5).
- Mentioning of Pharmaceutical concepts like *Sthalipaka*, *Nirvapa*, *Shodhana* and *Varti Kalpana* and *Anjana*.
- 2 References of *Parada* are mentioned for external use (Su.Chi 25/29 & Su.Ka 3/4)
- Mentioned the origin of *Swarna Makshika* (Su.Chi 13/17)

In *Astanga Hrudaya*-

- Mentioned properties of *Rasa Dravyas* in Detail (A.S.Su.12)
- Internal usage of *Parada* is mentioned for first time.
- Mentioning of *Abhraka* for the first time.
- Types of *Gairika*, *Kasisa* and *Makshika* are mentioned.
- Detailed explanation on *Shilajitu* is mentioned and it is given more importance and mentioned as *Sarvaroga Hara*.
- *Haratala Visha Lakshana* are mentioned.
- Internal usage of *Tuttha* is mentioned for the first time in *Bhutaraavaahvaya Ghrita*.
- Internal usage of *Ratnas* like *Mukta*, *Pravala*, *Neelam* is mentioned in *Shwasa Hidhma Chikitsa*.
- *Rasayana* properties of *Swarna*, *Swarna Makshika*, *Shilajitu* are explained in detail.
- *Bhasma Nirmana Vidhi* is mentioned using *Musha*.
- Mentioned 3 methods of preparation of *Ayaskriti*.
- *Swarna Prashana Vidhi* is mentioned in *Baala*.

CONCLUSION

The subject *Rasashastra* gives more importance to attaining immortality through which salvation can be attained. *Parada* is one such drug which can help in this regard. But we don't find much references about *Parada* in *Samhitas*. But there are references of other metals and minerals available in *Samhitas* which can also be used for making human body Disease free and strong like *Loha*. In the *Samhitas* of *Acharya Charaka*, *Sushruta* and *Vagbhata* references made about mercury are very limited. During *Samhita* period more stress was given to the herbal drugs.

Few metallic formulations are available in *Samhitas*. Metals were used as fine powders (ref. *Ayaskriti*). Process of '*Bhasmikanana*' using earthen *Sharavas* is found in *Astanga Hrudaya*. During the *Samhita* period metals were used for external medication and few references indicate that they were used for internal administration.

Very Few References of Metals and Mineral drugs are seen in Treatise of *Samhita* period ie before 8th century. But comparatively the scope for *Rasashastra* or *dhatu shastra* had become more evident during the end of *Samhita* Period ie during period of *Vagbhata*. But we can say that These treatises have made a strong base for the exploring the knowledge of Indian alchemy.

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