

## HISTORICAL REVIEW OF *SVARNA MĀKṢIKA*

Sudhaldev Mohapatra\* K.R.C.Reddy\*\*  
& C.B.Jha\*\*\*

### ABSTRACT

The old age Ayurvedic claim about the therapeutic importance of metals and mineral *bhasmas* are time tested. To make available the evidence for use of metals and minerals in therapeutics and to provide the knowledge of processing techniques in ancient India it is very much necessary to look over the history. *Rasa śāstra* is the branch of Ayurvedic science which deals with the pharmaceutical processings of the metals and minerals. *Svarna Mākṣika* is one of the most important materials described in various *Rasa* literatures as well as in *Saṁhitās* and in other Ayurvedic texts. Going through the different literatures its different features, geological distributions and various processing techniques like *śōdhana*, *māraṇa* are found. In *Saṁhitā* period only the features were described but during 7<sup>th</sup> Cen. AD & onwards its processings were found. Now a day *Svarna Mākṣika* is correlated with chalcopyrite by modern metallurgists. The features of chalcopyrite are also given to assist the more study in this regard. In the current paper it is tried to collect and compile all the related area about *Svarna Mākṣika* from all possible ancient literary resources as well as from possible modern texts, to facilitate further research.

**Key Words :** *Svarna Mākṣika*, *Puṭa*, *Śōdhana*, *Māraṇa*, Golden lusture

### Introduction

*Rasa śāstra* is the branch of *Āyurvēda* that identifies the minerals and metals of therapeutic importance and deals with its pharmaceutical processing. Through the processings techniques the stony and toxic materials are converted to *Bhasma* form, which are suitable for the living system and in proper dose cure the illness and disease conditions. The therapeutic importance of metals and mineral *Bhasmas* are time tested. "*Svarna Mākṣika*" is an important mineral having alchemical and therapeutic importance. It is considered as the second most essential element which could help to make the mercury more potent and thermostable. It contains Copper, Iron and Sulphur as main ingredient which signifies the synonym '*Tāmragandhāyasa*'. Starting from the period of *Saṁhitā* till now it has been used as most important therapeutic agent.

---

\* Resident, \*\*Reader, \*\*\*Professor, Department of Rasa Shastra, Faculty of Ayurveda, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221005, U.P.

**Mākṣika in Vēdas**

In Vedic literature *Mākṣika* indicates honey. No Description of *Mākṣika* for therapeutic purpose as mineral is found in Vedic literature.

**Mākṣika in Saṁhitā : (500-1000 B.C)****Caraka Saṁhitā<sup>1</sup>:**

*Mākṣika* is mentioned in various places in terms of *Mākṣika dhātu*, *Mākṣika*, *Tāpya* etc. and is indicated for various diseases like.

Name	Diseases	Name of formulation	Reference
<i>Mākṣika dhātu</i>	<i>Pāṇḍu</i> (Anemia)	<i>Maṇḍūra vaṭaka</i>	Ca. Ci. 16/76
<i>Tāpya</i>	<i>Pāṇḍu</i> (Anemia)	<i>Svarṇa Mākṣikādi yōga</i>	Ca. Ci. 16/78
<i>Mākṣika</i>	<i>Pāṇḍu</i> (Anemia)	<i>Yōgarāja</i>	Ca. Ci. 16/82
<i>Mākṣika dhātu</i>	<i>Kuṣṭha</i> (Skin Disease)	<i>Mākṣika + Gōmūtra</i>	Ca. Ci. 07/70
<i>Tāpya dhātu</i>	<i>Netra Rōga</i> (Eye Disease)	<i>Timira Nāsaka yōga</i>	Ca. Ci. 26/250

**Suśruta Saṁhitā<sup>2</sup> : (Ref. - Su.Ci.3/17-19)**

In *Suśruta Saṁhitā*, the luster, taste and therapeutic properties of *Mākṣika* are described in context of *madhumēha cikitsā*.

- It is described in the name of *Mākṣika dhātu*, *Tāpīja*.
- Qualitatively it is equivalent to *Amṛta*.
- It is found at the bank of river 'Tāptī'. Hence *Tāpīja*.. name is given.
- It is two types 1.*Svarṇa Mākṣika*. 2.*Rajata Mākṣika*
- Svarṇa Mākṣika* is of *Madhura* in taste and golden in luster; and *Rajata Mākṣika* is *Amla* in taste and silvery in luster.
- It is used to reduces ageing process (*Jarā*), Skin diseases (*Kuṣṭha*) Diabetes Mellitus (*Mēha*), Anemia (*Pāṇḍu*)
- During the intake of *Mākṣika* flesh of pigeon and *Kulattha* are contraindicated.

**Aṣṭāṅga Saṅgraha :<sup>3</sup>(Ref. U. T. 49/198)**

- Svarṇa Mākṣika* is found near by *Sumēru* Mountain (*Suvarṇa Śaila*)
- It is also collected from; *Kirāta*, *Yavana*, China country
- It is of two types -1. *Madhura* in taste and golden in luster  
2. *Amla* in taste and silvery in luster

d) Its Pharmacological Actions are...

*Rasa* - *Kiñcita Kaṣāya*

*Guṇa* - *Laghu*

*Vīrya* - *Śīta*

*Vipāka* - *Kaṭu*

e) During in-take of *Svarṇa Mākṣika*, *Kulattha* is contraindicated

f) It is used in *Jarā*, *Viṣa*, *Pāṇḍu*, *Mēha*, *Jvara*, *Śōtha*, *Yakṣmā*, *Kañtha*, *Nētra*, *Karṇa*, *Vikāras*. (Ref. A.S. U.T. 49/198)

***Aṣṭāṅga Hṛdaya* :<sup>4</sup>(Ref. U.T. 13/16)**

a) Here it is mentioned in the name of *Tāpya* and is used in *Timira*.

b) It is also used in *Pāṇḍu* (Ref. A.H. Ci. 16/16, 16/20 )

***Hārīta Saṁhitā* :<sup>5</sup>(Ref. *Sthāna* 3, 26/24)**

Here it is used for *Kṣaya*, *Pramēha*, *Aṣmarī*

The above information regarding *Svarṇa Mākṣika* indicates the scholars of *Samhitā* period were aware about the material and its features, availability, pharmacological properties and therapeutic utility. In *Suśruta saṁhitā* its dietary contradiction is also mentioned. But the processings are not available in the *saṁhitās*.

***Mākṣika in Nighaṇṭu***

***Bhāva Prakāśa*:<sup>6</sup>(Ref. *Dhātvaḍi*, *Varga*, *Ślōka*, 55-60)**

a) **Synonyms** - *Svarṇa Mākṣika*, *Tāpīja.*, *Mākṣikadhātu*

b) It is also described as *Upadhātu* of Gold

c) **Rasa (Taste)** – *Madhura*, *Tikta*

d) **It is used as**, *Vṛṣya*, *Rasāyana*, *Cakṣuṣya* and in *Vasti Rujā*, *Pāṇḍu*, *Viṣa*, *Mēha*, *Arṣa*, *Kañḍu*.

e) **It is two types** 1. *Svarṇa Mākṣika* having Golden lusture 2. *Raupya Mākṣika* having Silvery lusture.

***Śāṅkara Nighaṇṭu* :<sup>7</sup>(Ref. 3<sup>rd</sup> Part, Page 333)**

a) *Svarṇa Mākṣika* is regarded as *Upadhātu*

b) Here description of *Śōdhana*, by the process of *Bharjana* with *Saindhava lavaṇa* and *Nimbu svarasa* is found.

- c) Description of *Māraṇa* by trituration with *Kulattha* decoction, *Taila*, *Gōmūtra* are described
- d) Dose of *Mākṣika bhasma* is described 1 *Rati*

***Rāja Nighaṇṭu* : <sup>8</sup>(Ref. *Suvarṇādi varga* Page 333)**

Here the descriptions of Pharmacological properties are found. *Rasa - Madhura*, *Tikta*, *Amla*. *Vipāka -katu*. Two types of *Mākṣika* is described 1. *Hēma Mākṣika* 2. *Tāra Mākṣika*

Use - *Bhrama*, *Hṛllāsa*, *Mūrcchā*

During *Nighaṇṭu* period the most literatures are seems to be followed from the *samhitās*. But in *Śaṅkara nighaṇṭu Śōdhana* and *Māraṇa* processes are described very briefly.

***Mākṣika in Rasa Literature***

*Mākṣika* is an important mineral having alchemical and therapeutic dominancy and has been described in all *rasa* literature in details The *Mākṣika* was known since *Samhitā* period but the process of *Śōdhana*, *Māraṇa*, *Sattvapātana* and other alchemical processings of the mineral were found developed in *rasa* literature. Besides it's importance in mercurial processings, *Mākṣika* is considered the most important and powerful therapeutic agent. *Mākṣika* is found mentioned in different groups by different *rasa* text.

These are *Mahārasa* group, *rasa* group, *Uparasa* group and *Updhātu* group.

**Grouping**

1. *Mahārasa*

2. *Rasa*

3. *Uparasa*.

4. *Updhātu*

**Textual Reference**

Rv. (7/2), R.Cd. (10/2),

R.P.S. (5/2), R.R.S. (6/50),

R.P. (1/33), Ru. (4/4)

R.H.T. (9/4),

R.R.S. (2/1)

Rm. (3/1) R.S.S. (1/118-119),

Ak. (1/4-8),

S.Md.K. (11/53)

**Mythological Origin<sup>9</sup>:**

**Origin**

1. From the drops of blood falling from injured foot sole of Lord *Kṛṣṇa*

**Textual Reference**

Rv. (7/3-4)

2. From the bank of the river *Tāptī* or *Tāpī* S.Ci. (3/17), R.K.D. (Page No. 256), R.R.S. (*Uparasa, Sādhāraṇa rasa, Māraṇa*), B.R.R.S. (Page 102)

The mythology of *Svarṇa Mākṣika* is not very much understood. However the presence of significant percentage of iron in the material and its use in *Pāṇḍu* may signify its origin from the blood drops. Its synonym *Tāpya*, *Tāpī* signifies its origin from the bank of the river *Tāptī*.

### Verities

As per color <sup>10</sup>(Ref Rv. (7/5))

*Pitta* (Yellowish) - *Svarṇa Mākṣika*

*Śukla* (Whitish) - *Rajata Mākṣika*

*Rakta* (Reddish) - *Kāmsya Mākṣika*

**Synonyms** - There are too many Synonyms described in various texts they are as *Tāpya*, *Tāpyam*, *Tāpīja*, *Tāpyōtha*, *Sañjñaka*, *Tāpī*, *Tāpyadhātu*, *Pittaka*, *Pīta Mākṣika*, *Apīta*, *Āvarta*, *Svarṇa Mākṣika*, *Mākṣika*, *Hēma Mākṣika*, *Hēmadyuti*, *Hēmāṅga*, *Mākṣikadhātu*, *Dhātu Mākṣika*, *Madhu Mākṣika*, *Madhudhātu*, *Kṣudradhātu*, *Pittam*, *Nādīja*, *Vṛhadvarṇa*, *Garuḍa*, *Pakṣī*, *Tāpya Mākṣika*, *Rajata Mākṣika*, *Tāra Mākṣika*, *Raupya Mākṣika*, *Śvēta Mākṣika*, *Kāmsya Mākṣika*, *Dhātukṣaya* etc.

### Significance of Synonyms

Synonyms	Significance
1. <i>Tāpī</i> , <i>Tāpīja</i> , and <i>Tāpya</i>	Indicates place of origin
2. <i>Madhu</i> , <i>Kṣaudra</i> and <i>Kṣaudradhātu</i>	Similarity in characteristics with honey
3. <i>Svarṇadhātu</i> , <i>Suvarṇa</i> , <i>Pītaka</i> , <i>Pīta</i> , <i>Śvēta</i> , <i>Hēma</i> , <i>Tāra</i> , <i>Raupya</i>	Indicate the luster and colour
4. <i>Dhātukṣaya</i>	Denotes therapeutic efficacy
5. <i>Tāpya</i>	As it is formed due to intense heat of sun shine

### Acceptable Quality<sup>11</sup>:

1. Golden in colour and luster, and/or like *Navavarṇa* R.P.S. (5/122)  
*Suvarṇa* (Mixing of nine colour)

- |   |                             |
|---|-----------------------------|
| 2. Like Gold, Having no angular projection, Heavy, Black line while rubbing with hand and Golden line while rubbing with touching stone,      | A.P. (4/8)                  |
| 3. Like <i>pañca varṇa suvarṇa</i> .  | R.R.S. (2/8)                |
| 4. Twinkles like Gold on breaking, and outwardly look like <i>maṭamailā</i> (soily).  | R.R.S. (verse-53, page-206) |
| 5. <i>Snigdha</i> , Heavy, <i>Śyāmalakānti</i> , Golden line on rubbing with touching stone. Having no angulations, Golden in colour and glow | R.T. (21/4)                 |

#### Distribution and Collection:

According to *Rasa* literature *Svarṇa Mākṣika* is found at *Kanyākubja*, bank of river *Tāptī*, land of *Kirāta* China and *Yavan*<sup>12</sup>. It is mainly found at Japan, Spain, U.S.A, Portugal, Italy, Norway, Cyprus. *Kanyākubjōttha Mākṣika* is of golden colour or Yellowish in colour and *Mākṣika* collected from the bank of the river *Tāptī* is *pañca varṇa suvarṇavaṭ*<sup>13</sup> it is of *Pāśāṇabahula* (stony) and inferior in quality (A.P 4/4). At present in India Ghatasila in Bihar and Khetari in Rajasthan are the big source of *Svarṇa Mākṣika* (Copper Pyrite/ Chalco Pyrite) from which copper metal is obtained.

#### Properties of *Mākṣika*<sup>14</sup>:

- Svarṇa Mākṣika* is said to be *Niṣkōṇa* (devoid of angles), *Guru* (heavy), *Svarṇa varṇa* (bright yellow colour) and *Snigdha* (smooth).
- When rubbed on *Nikaṣa* (touching stone) it produces golden linings, but when rubbed on hand it produces black lines.
- On cleavage it appears golden yellow in colour.
- It is soft, brittle and can be cut with a knife easily.

#### Śōdhana of *Svarṇa Mākṣika*<sup>15</sup>:

#### Drugs of herbal origin used for Śōdhana:

Name of drugs	Principle adopted	References
<i>Kāñjī</i>	<i>Svėdana</i>	Rv. 7/6
<i>Kulattha kvātha</i>	-do-	Rv. 7/6, R.P.S (Page- 70)

<i>Kadalikanda Svarasa</i>	-do-	Rv. (7/6), R.T(21/18), A.P (4/32-33), R.S.S (278-281, R.P (Page No.34-35)
<i>Kōdrava Kvātha</i>	-do-	Rv.7/6
<i>Sūraṇakanda rasa</i>	-do-	-do-
<i>Kṣāra drava</i>	3 <i>Puṭa</i>	-do-
<i>Amla drava</i>	3 <i>Puṭa, Bhāvanā</i>	-do- and R.K.D. 2/3/6-7 Page No-234
<i>Ēraṇḍa snēha</i>	<i>Bharjana, 3 Puṭa, Svēdana,</i>	R.Cd. 10-132, R.S.S. 278-281 R.P. Page No.34-35, A.P. 4/32-33, Rv. 7/7, R.R.S. 2/78
<i>Mātuluṅga Svarasa</i>	<i>Bharjana and Svēdana</i>	R.S.S.13/208-209, R.R.S. 2/78, R.T.21/8-9
<i>Jambīri svarasa</i>	<i>Bharjana</i>	Rmt.2/68-69
<i>Kālamārisa kvātha</i>	<i>Svēdana</i>	R.S.S.13/208 (Page-40)
<i>Triphalā kvātha</i>	<i>Nirvāpa</i>	R.R.S.2/78,R.Cd.10/133
<i>Śuklamārisa rasa</i>	<i>Svēdana</i>	R.T. 21/12-14

**Drugs of Mineral origin used for Śōdhana:**

Name of drugs	Principle adopted	References
<i>Kṣāra</i>	<i>Puṭa</i>	Rv.- 7/7
<i>Lavaṇa</i>	<i>Puṭa, Bharjana</i>	- do- and Y.T. (Page 68)
<i>Saindhava Lavaṇa</i>	<i>Bharjana, Bhāvanā</i>	R.S. 3/78, Rmt.2/68-69.& R.S.S.13/209, R.K.D. 2/3/6-7, Page No.234

**Drugs of animal origin used for Śōdhana:**

Name of drugs	Principle adopted	References
<i>Takra</i>	<i>Svēdana, Mardana</i>	Rv.- 7/7, R.P.S – Page-70
<i>Gōmūtra</i>	- do-	- do-
<i>Sarpi</i>	<i>Puṭa</i>	- do-

**Drugs of herbal origin used for Māraṇa:**

Drugs	Types of <i>Puṭa</i>	Reference
<i>Nimbu svarasa</i>	<i>Varāha (5,10,3,8, 7)</i>	R.S.3/282, Page No.282-84, R.T-21 22, R.R.S. 2/80

<i>Kumārī svarasa</i>	<i>Gaja</i> (10)	R.Ci., Rmt. 2/70-71
<i>Ēraṇḍa</i>	<i>Gaja</i> (1), 30 <i>Vanyōpala</i> , <i>frying</i>	R.R.S. 2/80, R.S.S.13/211-12
<i>Mātuluṅga</i>	<i>Varāha Puṭa</i> (5,3)	R.R.S.2/79,R.Cd.10/133-35, R.P. verse-79, Page-100
<i>Haṁsapadī svarasa</i>	<i>Bhūdhara</i> 15	V.R.R.S., Page- 103
<i>Vaṭajaṭā Kvātha</i>	<i>Bhūdhara</i> 3	V.R.R.S., Page-103
<i>Arka dugdha</i>	-do-	-do-
<i>Snuhī dugdha</i>	-do-	-do-

#### Drugs of mineral origin used for *Māraṇa*:

Drugs	Type of <i>Puṭa</i>	Reference
<i>Gandhaka</i>	<i>Varāha, Gaja</i>	R.P.S, R.S.S-13/211-12, Page-42, R.T-21/22, R.R.S-2/79
<i>Hīngula</i>	<i>Gaja, Kūpī</i>	R.T-21/23-25, R.S- 3/282, Page -286
<i>Lavaṇa</i>	<i>Puṭa</i>	R.H.T- 10/10

#### Drugs of animal origin used for *Māraṇa*:

Drugs	Procedure	Reference
<i>Ghee</i>	<i>Frying</i>	R.R.S.2/80,
Blood of Rabbit	<i>Bhāvanā</i>	Ru. 4/57

#### Therapeutic uses<sup>17</sup>:

The therapeutic uses of *Mākṣika bhasma* as mentioned in *Rasa* texts are summarized systematically as follows:

1. Diseases of Nervous system : *Apsmāra, Anidrā*
2. Diseases of Respiratory system : *Kṣaya, Svarabhaṅga*
3. Diseases of Digestive system : *Mandāgnī, Grahaṇī, Arṣa, Kṛmi, Āmadōṣa, Udara rōga*
4. Diseases of Liver : *Kāmalā*
5. Diseases of Blood : *Pāṇḍu*
6. Diseases of Urinary system : *Vastirujā*
7. Miscellaneous diseases : *Śōṣa, Nānārūpa jvara, Jirṇa jvara, Kaṇḍū, Viṣa, Kuṣṭha, Śōtha, Sarva vyādhi*



In *Samhitā* period only the brief knowledge and therapeutic uses are available. But in almost all *Rasa* texts the detailed description of the material and its pharmaceutical processing techniques like *Śōdhana*, *Māraṇa* with using various associated drugs are described. This proves the gradual development and awareness about the material.

### **Modern aspect of *Svarṇa Mākṣika*<sup>18</sup>**

#### **Mineral**

Electro positive metals like Zinc, Mercury, Lead, Copper, etc. are found in nature in combination with most electronegative anions like sulphides, chlorides etc. are known as minerals. Also most electro positive metals like Sodium, Potassium etc. are able to lose electron easily under ordinary conditions thus these metals are found in nature in combination with most electronegative anions like sulphide, chloride etc. are known as minerals.

Also compounds of different metals which occur in nature and are obtained by mining are known as minerals. Minerals may be a simple or complex compound it is associated with impurities like sand, ZnO etc.

#### **Pyrite chalcopyrite or copper or pyrite**

Pyrite is a brass coloured iron sulphide mineral containing small quantity of arsenic, copper, nickel, cobalt, gold. The trade name pyrite, sometimes applied for the iron sulphide minerals like Marcasite (White Iron pyrite), Pyrrhotite (Magnetic pyrite). When the percentage of Copper exceeds above five the ore is frequently known as copper pyrite.

#### **The mineral chalcopyrite<sup>19</sup>**

- Chemistry:  $\text{CuFeS}_2$ , Copper Iron Sulfide
- Class: Sulfides
- Group: Chalcopyrite
- Uses: Major ore of copper
- Specimens

Minerals such as chalcocite,  $\text{Cu}_2\text{S}$ -67%, cuprite,  $\text{Cu}_2\text{O}$ -67%, distribution of chalcopyrite make it the leading source of copper. Chalcopyrite is a common mineral and is found in almost all sulfide deposits. Fine crystals of chalcopyrite have a unique character and can add to anyone's collection. Chalcopyrite (or copper pyrite), look like, and is easily confused with pyrite,  $\text{FeS}_2$ . Chalcopyrite is one of the minerals referred to "Fool's Gold" because of its bright golden, but real gold is a more buttery yellow and is ductile and malleable.

As an ore copper, the yield of chalcopyrite is rather low in terms of atoms per molecule. It is only 25% compared to other copper mineral.

**Physical characteristics:**

- **Color** is brassy yellow, tarnishes to iridescent blues, greens, yellows and purples
- **Transparence:** crystals are opaque lusture is metallic
- **Crystal system** is tetragonal
- **Crystal Habits are:** predominantly the disphenoid which is like two opposing wedges and resembles a tetrahedron. Crystals sometimes twinned. Also commonly massive, and sometimes botryoidal.
- **Cleavage** is rather poor in one direction.
- **Fracture** is conchoidal and brittle.
- **Hardness** is 3.5-4, **Streak** is dark green
- **Specific Gravity** is approximately 4.2 (average for metallic minerals).
- **Other Characteristics:** Some striations on most crystal face.
- **Associated Mineral are.** Quartz, fluorite, barite, dolomite, calcite, pentalndite, pyrite and other sulphides.
- **Notable occurrence includes.** Chile, Peru, Mexico, Europe, South Africa, several USA sites and others.
- **Best Field Indicators are** Crystal habit, tarnish softness, brittleness.

**Chemical analysis<sup>20</sup>:**

Free sulphur	01.43%
Sulphur	03.33%
Calcium	01.63%
Sodium	00.92%
Potassium	00.37%
Sulphite	03.00%
Copper	20-35%
Ferric oxide	25.00%
Ferrous oxide	05.07%
Iron	36-51%
Silica	03.08%

- It burns with blue flame and rest part after burning shows magnetic property. It is also soluble in  $\text{HNO}_3$  and aquaregia on heating.

**Conclusion:**

1. History reveals the various features of *Svarṇa Mākṣika* according to its geographical distributions.
2. Different synonyms used for the *Svarṇa Mākṣika* indicates its features, place of origin, therapeutic use and about its origination.
3. A large number of procedures for *Śōdhana* and *Māraṇa* with use of different associated drugs of different origin (herbal, animals and minerals) indicate the enriched ancient technology of mineral processing.
4. Use of *Svarṇa Mākṣika* in various diseases indicates its therapeutic importance.

**Abbreviations**

*Rasōpaniṣad*- Ru., *Rasa Ratna Samucchaya*- R.R.S., *Rasa Hṛidaya Tantra*-R.H.T., *Rasa Taraṅgiṇī*-R.T., *Rasāyana Sāra*-R.S., *Rasa Prakāśa Sudhākara*- R.P.S., *Rasēndra Sāra Saṅgraha*-R.S.S., *Vṛhat Rasa Rāja Sundara*-V.R.R.S., *Rasa Paddhati*-R.P., *Rasēndra Cūḍāmaṇi*- R.Cd., *Rasēndra Cintāmaṇi*-R.C., *Rasāmṛta*-Rmt., *Rasārṇava*-Rv., *Yōga Taraṅgiṇī*-Y.T., *Rasamañjarī*-Rm., *Rasa Kāmādhēnu*-R.Kd., *Āyurvēda Prakāśa*-A.P., *Ānandakanda*-Ak., *Śāraṅgadharaśamhitā Madhyama Khaṇḍa*-S.Md.K., *Aṣṭāṅga Hṛdaya Cikitsāsthāna*- A.H.Ci., *Uttara Tantra*-U.T., *Aṣṭāṅga Saṅgraha Uttara Tantra*- A.S.U.T., *Suśruta Cikitsāsthāna*-Su.Ci., *Caraka Cikitsāsthāna*-Ca.Ci.

**REFERENCES**

1. Acharya Charak 1984 *Caraka Samhitā, Āyurvēda Dīpikā* Commentary, *Cikistā* - 7/70, 16/76, 78, 82, 26/250; Chowkhambha Sanskrit Samsthan, Varanasi, India
2. Ambikadatta Shastri 1997 *Suśruta Samhitā* (11th Edition) Ci-3/17-19; Chowkhambha Sanskrit Samsthan, Varanasi, India
3. Acharya Vagbhata 1945 *Aṣṭāṅga Saṅgraha, Uttar Tantra* - 49/108; Chowkhambha Sanskrit Series, Varanasi, India
4. Acharya Vagbhata 2005 *Aṣṭāṅga Hṛdaya*, (Reprint), *Uttar Tantra* -13/16; Chowkhambha Sanskrit Samsthan, Varanasi, India
5. Acharya Hareeta 1985 *Harita Samhitā* (1<sup>st</sup> Edition) Edited by Ramavallabha Shastry, 3<sup>rd</sup> *Sthāna* 26/24; Prachya Prakashana, Jagat ganja, Varanasi, India

6. Chunekar K.C.& Pandey G.S. 1988 *Bhāvaprakāśa Nighaṅṭu* (with Hindi commentary, 8<sup>th</sup> Edition), *Dhātṽdī varga*; Chowkhambha Bharati Academy, Varanasi, India
7. Gouda Sankaradatta, 1965 *Śāṅkara Nighaṅṭu*, (1<sup>st</sup> Edition), 3<sup>rd</sup> Chapter; Published by Manager, Vanausadhi Bhandara, Jabalpur, India
8. Vaidya Narahari 1935 *Rāja Nighaṅṭu*, *Suvarṇādi varga*; Anandashram Mudranalaya, Pune, India
9. Tripathi, I.D. *Rasārṇava*, 7/3-4; Chowkhambha Sanskrit Series, Varanasi, India
- Ambikadatta Shastri, 1997 *Suśruta Saṁhitā*, 11th Edition, *Cikistā-3/17*; Chowkhambha Sanskriti Samsthana, Varanasi, India
- Mishra Chudamani *Rasa Kāmadhēnu*, P-258, 1<sup>st</sup> Edition, Edited by Acharya Yadavji Trikamji; Chowkhambha Orientalia, Varanasi, India
- Bhatt Sri Gopala Krishna *Resēndra Sāra Saṁgraha*, 4<sup>th</sup> Edn, *Uparasa māraṇa*, *Samśōdhan* by Kaviraj Narendra Nath Mishra
- Dattaram Chaube *Bṛhat Rasa Rāja Sundaram*, Page -102, Motilal Banarsi Dass, Varanasi, India
10. Tripathi I.D. *Rasārṇava* 7/5; Chowkhambha Sanskrit Series, Varanasi, India
11. Bhatt Yasodhar *Rasa Prakāśa Sudhākara*, 65/122, Edited by S.N. Mishra; Chowkhambha Sanskrit Sansthan, Varanasi, India
- Upadhya Madhav *Āyurvēda Prakāśa*, 4/8, Edited by Gulraj Sharma and Mishra, Second Edition; Agrawal Press, Aligarh, India
- Acharya Vagbhata 1969 *Rasa Ratna Samuccaya*, 2/82 Edited by Sri Dattatreya Ananta Kulkarni; ML Publication, New Delhi
- Bhatt Sri Gopala Krishna *Resēndra Sāra Saṁgraha*, 4<sup>th</sup> Edition, Verse 53, *Samśodhan* by Kaviraj Narendra Nath Mishra
- Sharma Sadananda *Rasa Taraṅgiṇī*, 21/4; Motilal Banarasi Das Publication, Varanasi, India
12. Acharya Vagbhata 1969 *Rasa Ratna Samuccaya*, 2/77-78, Edited by Sri Dattatreya Ananta Kulkarni; ML Publication, New Delhi

13. Acharya Vagbhata 1969 *Rasa Ratna Samuccaya*, 2/82 Edited by Sri Dattatreya Ananta Kulkarni; ML Publication, New Delhi
14. Upadhyaya Madhav *Āyurvēda Prakāśa*, 2/8, Edited by Gulraj Sharma and Mishra, second Edition; Agrawal Press, Aligarh, India
15. Jha.C.B. et al, 1990 A Study on *Sattvapātana* - Ph.D thesis, Department of *Rasa Śāstra*, BHU, Varanasi, India
- Durga Chinta et al 2005 Comparative Study of *Mākṣika bhasma* and the *bhasma* prepared With the combination of *Tāmra & Lōha*; Ph.D. Thesis, Dept of Rasa Shastra, IMS, BHU, Varanasi, India
16. Jha.C.B. et al 1990 A Study on *Sattvapātana* - Ph.D thesis, Department of Rasa Shastra, BHU, Varanasi, India
- Durga Chinta et al, 2005 Comparative study of *Mākṣika bhasma* and the *bhasma* prepared With the combination of *Tāmra & Lōha*; Ph.D. Thesis, Dept of Rasa Shastra, IMS, BHU, Varanasi, India
17. Sharma Sadananda *Rasa Tarāṅgiṇī*, 21/28, Motilal Banarasi Das Publication, Varanasi, India
- Upadhy Madhav *Āyurvēda Prakāśa*, 4/9-10, edited by Gulraj Sharma and Mishra, Second Edition, Agrawal Press, Aligarh, India
- Trikamji Yadavji 1967 *Rasāmṛt*, 2/63-67, 1<sup>st</sup> Edition; Nirnay sagar Press, Bombay
18. Acharya.R.C. et al 1992 Modern College Chemistry, Chapter-6, 4<sup>th</sup> Edition; Kalyani Publisher, New Delhi
19. Durga Chinta et al 2005 Comparative study of *Mākṣika bhasma* and the *bhasma* prepared With the combination of *Tāmra & Lōha*; Ph.D. Thesis, Dept of Rasa Shastra, IMS, BHU, Varanasi, India
- Jha C.B. 1994 *Āyurvēda Rasa Śāstra*; Chowkhambha Surabharati Prakashan, Varanasi. pp -223

## सारांश

### स्वर्णमाक्षिक का ऐतिहासिक पुनरवलोकन

सुधालदेव मोहपात्र, के.आर.सी. रेड्डी एवं सी.बी. झा

आयुर्वेद चिकित्सा पद्धति विश्व की अतिप्राचीन चिकित्सा पद्धतियों में अन्यतम है। प्राचीन काल से ही आयुर्वेद में खनिज तथा धातुओं का प्रयोग विभिन्न विकार समुदाय को दूर करने के लिए होता रहा है। धातुओं एवं खनिजों का व्यवहार एवं औषधि निर्माण पद्धतियों के ज्ञान के लिए इतिहास को जानना आवश्यक है। रसशास्त्र आयुर्वेद की वह शाखा है, जिसमें मुख्यतः धातुओं एवं खनिजों की औषधि निर्माण प्रक्रिया के बारे में वर्णन किया गया है। स्वर्णमाक्षिक औषधियों में एक प्रमुख स्थान रखता है। इसके बारे में संहिता ग्रन्थों, निघण्टुओं एवं रस ग्रन्थों में वर्णन मिलता है। संहिताकाल में केवल इसके परिचय एवं औषधीय उपयोगिता के बारे में उल्लेख है, जबकि सातवीं शताब्दी के बाद उपलब्ध विभिन्न रस ग्रन्थों में उपर्युक्त तथ्यों के सहित भौगोलिक स्थिति, निर्माण-प्रक्रिया यथा- शोधन, मारण इत्यादि का विस्तृत विवरण मिलता है। आधुनिक युग में खनिज विज्ञान की भाषा में चालकोपार्ड्राइट्स के साथ इसकी तुलना की जा सकती है। अतः चालकोपार्ड्राइट्स का संक्षिप्त परिचय इस लेख में बताया गया है। इस अनुसंधानात्मक लेख में स्वर्णमाक्षिक से सम्बन्धित समस्त प्राचीन एवं अर्वाचीन ग्रन्थों का ज्ञान संग्रहीत करने की चेष्टा की गयी है। यह लेख भविष्य में गवेषणात्मक अनुसंधान को सहायता प्रदान करेगा।