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An Ayurvedic review on *Hartala* (yellow orpiment) : A *Dhatuja Visha*

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ABSTRACT

In Ayurveda, usage of 'Dhatuja Visha' is given in different formulations which are having therapeutic significance. Hartala comes under Dhatuja Visha mentioned by Acharya Sushrut. It is inorganic irritant poison and has a Lomshatana property. It is known as yellow orpiment or arsenic trisulfide (AS₂S₃) and used as depilatory, coloring pigment and in flypaper. It is an Arsenic compound which is used in several skin diseases in spite of its toxic nature. Hartala or orpiment, a metallic drug, is taken as an ingredient in many Ayurvedic formulations in spite of its direct use, purification is necessary before use and theses formulations are used externally as well as internally in chronic disorders. Here in the article an attempt has been made to collect the Ayurvedic review on Hartala from various Ayurvedic classics.

Key words: Hartala, Shodhana, Ayurveda, Dhatuja Visha, Orpiment.

INTRODUCTION

Ayurvedic metallic medicines have been traditionally used for thousands of years in India. Presently Drugs & Cosmetic act of India to rule out and control the Ayurvedic medicines. However there is a large number of Ayurvedic formulations containing poisonous substance as an ingredient and these poisonous substances are placed under Schedule-E of Drugs and Cosmetic Rules 1945. [1] As per Ayurved, before use of poisonous drugs *Shodhana* process is required for preparing the Ayurvedic formulation. It is an Ayurvedic concept that the *Shodhana* procedures mitigate or eliminate the unwanted toxic effect and

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Published by Maharshi Charaka Ayurveda Organization, Vijayapur, Karnataka (Regd) under the license CCby-NC-SA increase the therapeutic importance of Ayurvedic formulation containing poisonous substances.

Hartala which is chemically arsenic tri-sulphide, also called yellow orpiment is an Ayurvedic compound is taken as ingredient in many Ayurvedic formulations. Acharya Charaka has told Hartala is a Parthiva Dravya^[2] and given references to treat various skin disorders, Hikka, Kasa, Swasa Chikitsa, Kustha Chikitsa, Unmada Chikitsa etc. The references of Hartala are available in Susrutha Samhita, for cleansing wounds as Vrana Sodhana, Pandu Karma, Arsha, for various skin disorders, Granthi, Upadamsa, Visarpa and as a hair remover in different formulations. References are available regarding Dhatuja Visha^[3] in Lutadamsa Chikitsa in Kalpasthana, simultaneously in *Uttara Tantra*, references are available in the subject of worms, eye diseases, skin diseases and several paediatric disorders in the form of oil, powder, and Dhumapana.

Acharya Vagbhata mentioned Hartala mainly in Nasa Rogas, Sotha, Vrischika Damsa, for Vidarana action. In Rasashastra, majority of Rasacharyas mentioned Hartala in Uparasa group. In Sharangadhara Samhita it is mentioned in Upadhatu Varga. [4]

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The present review are organised in various sections based on Ayurvedic view of *Hartala*.

MATERIALS AND METHODS

The data which is related to *Hartala*, collected from Ayurvedic literatures and scientific journals.

Historical Review

Vedic period

- Mythologically it is said that Hartala is originated from the discharge produced at the end of sexual act of lord Shiva and goddess Parvati.^[5]
- In Purana it is said that, Lord Narasimha killed Hiranyakashipu. At this time the yellow vomitus of Hiranyakashipu is converted into flakes. This is considered as Hartala.^[6]

Samhita period

 Charaka Samhita has 14 references of Hartala in different places with different aspects. It was used to treat many diseases which are listed below,

Table 1: Different references of *Hartala* in *Charaka Samhita*.

SN	References in Charaka Samhita	Sthana
1.	Grouping under 'Parthiva Dravya'	Sutrasthana 1/71
2.	External application in various skin diseases	Sutrasthana 3/5, 3/12
3.	As an ingredient of Dhumapana in Shirovirechana (Aprajitadi Shiroviraichnik Dhuma)	Sutrasthana 5/26
4.	Use of Hartala in Kanakakshiri Tailam for treating Kustha.	Chikitsasthana 7/114
5.	As an Anjanartha varti for Unmada Chikitsa	Chikitsa sthana 9/66-67
6.	Uses of <i>Lepa</i> in <i>Arsha Chikitsa</i>	Chikitsasthana 14/56
7.	Used as <i>Dhoomavarthi</i> and <i>Manahshiladi Ghrita</i> in <i>Hikka</i>	Chikitsasthana 17/77-78,

	Shwasa Chikitsa	17/145
8.	Used as Manahshiladi Dhuma in Kasa Chikitsa	Chikitsasthana 18/69-70 18/74-75
9.	Used in <i>Mrita sanjeevani agada</i> and <i>Mahagandhhastinam Agada</i> in <i>Visha Chikitsa</i>	Chikitsasthana 23/54, 23/78
10.	Used in <i>Peetaka Churna</i> for treating <i>Kantha</i> and <i>Mukha Rogas</i>	Chikitsasthana 26/196

 Sushruta Samhita mentioned Hartala under Dhatuja Visha. Totally 29 times Hartala is quoted for various points of view as mentioned below,

Table 2: Different references of *Hartala* in *Sushrut Samhita*.

SN	References in Sushruta Samhita	Sthana
1.	Vrana shodhana dravyas as; sanshodhani varti & sanshodhani kalka	Sutrasthana 36/14-15
2.	Vrana Shodhana Chikitsa	Chikitsasthana 1/60
3.	Vrana savarnikarana Lepa	Chikitsasthana 1/97
4.	Lomshatan Lepas	Chikitsasthana 1/105, 1/107, 1/108
5.	Used as <i>Lepa</i> for <i>Arsha</i>	Chikitsasthana 6/12
6.	Used as a Kusthahara Lepa	Chikitsasthana 9/10
7.	Used as a Shvitrahara Lepa	Chikitsasthana 9/27
8.	Updamshahara Churna	Chikitsasthana 19/40
9.	Used as an <i>Updamsha & Visarpa</i>	Chikitsasthana

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	Chikitsa	19/46
10.	Lepa used for Arunshika	Chikitsasthana 20/28
11.	Useful in <i>Ahipootna Chikitsa</i>	Chikitsasthana 20/59
12.	Said as a <i>Dhatuja Visha</i>	Kalpasthana 2/5
13.	Useful in treating <i>Lutadamsha</i> <i>Chikitsa</i>	Kalpasthana 8/112
14.	Anjanvarti in Shleshmabhishyand Chikitsa	Uttaratantra 11/10
15.	Shakuni Pratishedha Chikitsa	Uttaratantra 30/6
16.	Taila Abhyanga in Poothana Pratishedha	Uttaratantra 32/4
17.	Taila Abhyanga in Andhapootana Pratisheda Chikitsa	Uttaratantra 33/4
18.	Useful as Mustadi Varti as Dhoompana in Kasa Chikitsa	Uttaratantra 52/23

Sangraha period

 Acharya Vagbhatta has explained Hartala on Nasa Roga, Visha Pratishedha etc. as per the actions and uses given by Acharya Charaka and Sushruta.

Table 3: Different references of *Hartala* in *Ashtanga Hridaya*.

SN	References in Ashtanga Hridaya	Sthana
1.	Used as an ingredient in the Tikshna Dhoompana	Sutrasthana 21/18
2.	Used as an ingredient in the Dhoompana in Kaphaja Kasaroga	Chikitsasthana 3/68
3.	Useful in <i>Arsha Chikitsa</i> as one of the component of <i>Kasisadi Taila</i>	Chikitsasthana 8/15

4.	Dadrunashaka Churna used in various skin disease	Chikitsasthana 19/67
5.	Used as Kusthanashaka Lepa	Chikitsasthana 19/70
6.	Used as Ghran Varti on Puyrakta Chikitsa (Nasa Roga)	Uttaratantra 20/24
7.	Used it for Kustha, Dushta-vrana, Nadi-vrana, Apachi	Uttaratantra 30/22-24
8.	Updamshar Churna-Lepa	Uttaratantra 34/4
9.	Ingredient of <i>Chandroday Agada</i> in <i>Visha Pratisheda</i>	Uttaratantra 35/24
10.	Vrischika Damsa-Nashak Agad	Uttaratantra 37/40
11.	Mandar Agada in Luta Damsa Chikitsa	Uttaratantra 37/73

The author of *Sharangadhara Samhita*, *Yoga Ratnakara*, *Bhava Prakasha* and *Brihad Yoga Tarangini* described it in *Upadhatu Varga*.

Rasa-shastra period

- Almost all Rasagrantha the literature of Hartala is available in detail, under Uaparasa Varga. Most of the Rasa Shastra texts have described Hartala with its synonyms, properties, indication, contraindication, Shodhana, Marana, Satva Patana etc.
- The text of 12th and 13th centuries as Rasa Prakasa Sudhakar, Rasendra Sarasamgrah, Rasa Sara, Rasa Chintamani, Rasa Ratnakara have described alchemical and pharmaceutical processes.
- 13th century Raskamdhenu compiled the uses of Hartala and remedies according to diseases.
- 20th centuary texts such Rastarangini, Raschandashu, Rasajalanidhi etc. have described about *Hartala*.

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Table 4: Different references of *Hartala* in various *Rasashastra* classics.

SN	Name of classic	Reference available
1.	Rasa Ratna Samuchaya ^[7]	3/70-90
2.	Rasa Prakash Sudhakar ^[8]	6/1-10
3.	Brihata Rasa Raj Sundara ^[9]	Hartala prakarana Pg No-143
4.	Rasendra Sara Sangraha ^[10]	1/166
5.	Yoga Tarangini ^[11]	17/85
6.	Rasendra Chintamani ^[12]	7/77
7.	Ayurveda Prakasha ^[13]	2/173
8.	Sharangdhara Samhita ^[14]	Madhyama khanda 11/74-75
9.	Anand kanda ^[15]	Prathama ullasa- Kriyakarana vishranati
10.	Siddha Prayoga Sangraha ^[16]	6/3
11.	Bhaishajya Ratnavali ^[17]	3 th Chapter
12.	Rasendra Mangal ^[18]	3/70
13.	Rasendra Chudamani ^[19]	11/29
14.	Rasarnava ^[20]	7/74
15.	Rasendra Purana ^[21]	8/3
16.	Rasa Tarangini ^[22]	11/1-103
17.	Ras Kamdhenu ^[23]	2/4/78
18.	Rasa Hriday Tantra ^[24]	9/4

 Text like Kautilya Arthashastra of 4th Century A.D also described about Hartala.^[25]

Distribution

Generally occures along with Realgar, at hot spring deposits at Arsenic veins. It is available at U.S.A., Peru, Hungary, Yugoslavia. In India, it occurs in very small quantity near Darjeeling and Kashmir and Kuman hills. Hence much of the orpiment is being imported to India.^[26]

Vernacular Names

- Sanskrit Hartala, Tala, Ala.
- Hindi Hartala.
- Bengali Hartala.
- Marathi Hartala.
- Gujarati Hartala.
- Arabia Jarnikha asphara.
- Telugu Haratalamu
- English Yellow orpiment^[26]

Synonyms

- Ala: Ornament for ala.
- *Chitranga*: Having different colours.
- Chitrangada: Having different colours.
- *Girija lalita* : Reddish yellow in colour.
- Kanaka rasa : Looks like gold.
- Kanchanaka : Looks like gold.
- Pinjaraka : Looks like cage.
- Pinga : Reddish yellow colour.
- Pingarasa: It explains its colour i.e reddish yellow.
- Romaharana: Removes hair from the root (Karma vishesha).
- Shailusha Bhushana: Utpatti in mountain and looks like an ornament on mountains.
- *Tala*: Talameva haritalam.
- Vidalak: Used for eye disease (Guna vishesha)

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Table 5: Showing various synonyms of *Hartala* mentioned in the classics. [27-35]

S N	Name of the text	R RS	R T	R C	RJ N	RS S	A P	R A	A K	B R
_										
1.	Haritala	+	+	+	+	+	+	+	+	+
2.	Tala	-	+	+	+	+	+	+	-	+
3.	Alam	-	+	+	-	+	+	+	-	+
4.	Talaka	+	+	+	+	-	+	-	+	-
5.	Mallagand hajam	-	+	-	+	-	-	-	-	-
6.	Pinjara	-	+	-	+	+	-	-	-	+
7.	Peetanaka	-	+	-	-	-	-	-	-	-
8.	Shailushu Bhushana	-	+	+	-	+	-	-	-	-
9.	Romahara m	-	-	+	+	+	-	-	-	+
1 0.	Vidalaka	-	+	-	+	-	-	-	+	-
1 1.	Chitragand ha	-	+	-	+	-	-	-	-	-
1 2.	Vamshapat ra	-	+	-	-	-	-	-	-	-
1 3.	Natabhush ana	-	+	-	+	-	-	-	-	+
1 4.	Natamand ana	-	+	-	-	-	-	-	+	-
1 5.	Dala	-	-	-	-	-	+	-	-	-
1 6.	Malla	-	-	-	+	+	-	-	-	+

1 7.	Peetam	-	-	+	-	+	-	-	+	-
1 8.	Pinjaka	-	-	+	+	-	-	-	-	-
1 9.	Vidalam	-	-	-	-	-	-	-	-	-
2 0.	Godantam	-	-	-	-	-	-	+	+	+
2 1.	Vangari	-	-	-	-	-	-	-	-	+
2 2.	Kharjuram	-	-	-	-	-	-	-	-	-
2 3.	Atigandha m	-	-	-	-	-	-	-	+	-
2 4.	Girijalalit	-	-	-	-	-	-	-	+	-
2 5.	Romanasha ka	-	-	-	+	-	-	-	-	-

RRS = Rasa Ratna Samuchchaya, RT = Rasa Tarangini, RC = Rasa Chandhansu, RJN = Rasa Jala Nidhi, RSS = Rasendra Sara Samgrah, AP = Ayurved Prakash, RA = Rasa Amrit, AK = Anand Kand, BR = Bhaisajya Ratnawali.

Types

According to Rasgranthas 2 types (Patra Tala and pinda Tala) and 4 types of Hartala (Patra, Pinda, Godanti and Vakadala) are mentioned.

Table 6: Showing types of *Hartala* according to various classics.

Rasarnav, Rasa Tarangini, R.R.S. Ayurveda Prakash, Anand Kand, Rasa Chandasu, Rasa Amrit etc.	Raschikitsa, Rasjalanidhi
1. Patra Tala	1. Patra Hartala

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2. Pinda Tala	2. Pinda Hartala	
	3. Godanti Hartala	
	4. Vakadala	

Lakshana^[36]

Table 6: Showing Lakshana of four types of Hartala.

1) Patra Hartala	2) Pinda Hartala	3) Godanti Hartala	4)Vakadala Hartala
Thin layers and glazy	Having no layers	Soft, Heavy	Soft generally known as "Cold <i>Hartala</i> "
Golden yellow and shiny	Found in lumps and heavy.	Appears like cow's teeth	heavy in nature
Heavy and scaly form	It can stop the discharge of menses.	Yellow with blue stripes at the center	having layers
Best for medicinal preparation	It is said to be inferior for medicinal preparations.	Found in the form of long bars	cure Leucoderma and Leprosy.
Soothing and soft	Has a very little essence.		

Toxicity of Ashuddha Hartala

Ashuddha Hartala increases Vata and Kapha Dosha leads to disease like Prameha, Santap, cracks on skin, Jwara, and constriction of blood vessels and lastly leads to death. As it is considered as an arsenic compound that is having poisonous properties, hence always it should be used after Shodhana.^[37]

Antidote

Jeeraka with equal quantity of sharkara in the Kushmanda Swarasa for 3 times a day or it can be

continued until the *Ashuddha Haratala Lakshana* diminishes.^[38]

Shodhana

Small pieces of *Hartala* bundled in tied *Pottali*. This *Pottali* is placed in *Dolayantra* containing any of the *Dravya* mentioned in the following table or mixing with all. It is subjected to *Agni* for 3 hrs. Care should be taken that the *Pottali* should not touch the bottom of the *Yantra*. After 3 hrs the *Pottali* is removed. Then it is washed with hot water. Some author explains that after *Swedana* procedure, *Mardana* is done with water until it attains *Nischandrika* and then allows it to dry. This *Shodhita Hartala* is used for medicinal purpose.

Table 7: Showing *Shodhana* of *Hartala* by giving *Bhavna Dravya* and *Swedan* in *Dolayantra* mentioned in various classsics.

SN	References	Dravya	Procedure	Time
1.	Rasa Ratna Samucchaya	Kushmanda Swarasa or Tila Kshara or Churnodaka.	Swedan in Dolayantra.	3hrs.
2.	Rasendra Sambhava.	Churnodaka and Kanji or Triphala Kwatha or Dugdha or Vata Dughdha.	Swedan in Dolayantra	3hrs.
3.	Rasa Chikitsa	Churnajala.	Bhavana or Swedana	1 day.
4.	Rasa Jala Nidhi	Churnodaka. Kushmanda Swarasa or Tila Kshara or Churnodaka or Tankan, lime juice,	Bhavana Swedan in Dolayantra	7 days. 3hrs.

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		Kanji.		
5.	Rasamrit & Ayurveda Prakash.	Churnodaka & Kushmanda Swarasa Tila Taila & Triphala Kwath.	Swedan	in each for 1 Yama.
6.	Rasarnava.	Kushmanda Swarasa.	Swedan	100 times.
7.	Ras Tarangini	Shalmali mool swaras or nimbu swasras or kushmand or tilkshara jala.	Swedan and Bhavana	3 hrs 7 times

Here, it is seen that *Shodhana* process for *Hartala* as mentioned various classics of *Rasa Shastra*, *Churnodak* and *Kushmanda Swarasa* stands first which has been described by the maximum classics. *Triphala Jala, Tilaksara Jala* and *Kanji* are also used for *Shodhana* process.

Pharmacological properties^[39]

Rasa	Katu
Guna	Snigdha, Ushna
Veerya	Ushna
Vipaka	Katu
Doshaghnata	Kapha - Vata Shamaka
Karma	Sleshmarogahara, Raktadoshahara, Deepana, Twachya, Rasayana.

Rogaghnata - Kushta, Streepushpa Nashaka, Jwara, Krimi, Vatarakta, Rakta Dushti, Vishanashak, Kandu Hara, Visarpa, Dadru, Pama, Prameha, Kaphapittaj Roga.

Matra - 1/8 to 1 Ratti (15 mg to 30 mg)

Table 8: Showing Pharmacological properties of *Hartala* mentioned in various classics.

S N	Properties	RR S	R C	RP S	RS S	R T	RJ N	A P	R A
1.	Katu	+	+	+	+	-	+	+	-
2.	Kashaya	-	-	+	+	-	-	+	-
3.	Tikta	-	-	-	-	-	-	-	-
4.	Snigdha	+	+	-	+	+	+	+	-
5.	Ushna	+	+	+	-	-	+	+	-
6.	Guru	-	-	-	-	-	-	-	-
7.	Angadeepti (Varnadee pti)	-	+	-	-	+	+	-	-
8.	Vishaharan a	+	+	+	-	-	-	+	-
9.	Deepnam	+	+	+	-	-	-	-	-

RRS = Rasa Ratna Samuchchaya, RC = Rasa Chandhansu, RPS = Rasa Prakash Sudhakar, RSS = Rasendra Sara Samgrah, RT = Rasa Tarangini, RJN = Rasa Jala Nidhi, AP = Ayurved Prakash, RA = Rasa Amrit

Table 9: Showing the therapeutic indication of *Shodhit Hartala* according to various classics.

S N	Indication	RR S	R C	RP S	RS S	R T	A P	R A
1.	Kushtha	+	+	+	+	+	+	+
2.	Vatarakta	-	+	-	-	+	-	-
3.	Kandu	-	-	-	-	-	+	-

4.	Visarpa	-	-	-	-	+	-	-
5.	Vicharchika	-	-	-	-	+	-	-
6.	Phiranga	-	+	-	-	+	-	-
7.	Vishama Jwara	+	-	-	+	+	-	-
8.	Bhagandhar a	-	-	-	-	+	-	-

RRS = Rasa Ratna Samuchchaya, RC = Rasa Chandhansu, RPS = Rasa Prakash Sudhakar, RSS = Rasendra Sara Samgrah, RT = Rasa Tarangini, AP = Ayurveda Prakash, RA = Rasamrit

Artificially prepared Hartala

Artificial preparation of *Hartala* in *Rasa Shastra* is given in *Rasatarangini* as follows:

Powders of (49) parts of purified Arsenic Oxide (*Somal*) and (24) parts of purified Sulphur (*Gandhak*) are to be mixed in a mortar and kept in "*Damaru Yantra*" with mild heat given to it. The time limit and the range of temperature are not described in this regard so, when it gets self-cooled this *Yantra* should be put off carefully from the fire and *Hartala* which is adhered to the upper surface of the *Yantra* is to be collected. This *Hartala* thus prepared doesn't require any further purificatory processes.^[40]

Formulations^[41]

- Kasturibhairav Rasa
- Krimikastanal Ras
- Gulmakalanal Rasa
- Chandkeshwar Rasa
- Talak Bhasm
- Talkeshwar Ras
- Talsindur
- Nityananda Ras
- Bhutankusa Rasa
- Manthana Bhairav Rasa
- Raktapittantak Rasa

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- Rasmanikya
- Rasendragutika (Brihad)
- Vatagajankush Rasa
- Vataraktank Rasa
- Vidhyadhar Rasa
- Sannipatbhairav Rasa
- Sameerpannag Rasa
- Sarveswari Rasa.

DISCUSSION

Since ancient physicians Acharya Sushrut said that *Hartala* is *Dhatuja Visha* i.e. metal poison; therefore it is subjected to *Shodhana* process to make it least toxic and suitable for better human consumption. There have been several substances such as juice of *Benincasa hispida* fruit, *Churnodak* etc. which are used for detoxification of *Hartala*. It (Orpiment) is the sulphides of Arsenic having *Ushna Virya* (hot potency) drugs, *Kapha-Vata Shamak* and *Raktadoshhara*, So *Hartala* and its formulation are used in various diseases externally as well as internally such as *Kustha*, *Phiranga*, *Visham Jwara* etc.

CONCLUSION

Hartala is Romnashanam which mean it is having hair removal property. It is known as yellow orpiment or arsenic trisulfide (AS₂S₃) and used as depilatory, coloring pigment etc. Hartala (As₂S₃) is though a poisonous drug and its Shodhana is mentioned in all the Rasashastra classics. Ayurveda has unique concept of using many types Visha for treating in several varieties of diseases and Shodhana of poisonous drugs are necessary. This review article aims to understand the Ayurvedic aspect of Hartala.

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