



Review Article

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**A REVIEW ON KASISA IN INDIAN ALCHEMY: A HEMATINIC MINERAL DRUG**Anamika Shukla ^{1*}, Vishnu Prasad Gautam²¹Lecturer, Department of Ras-shastra and Bhaishajya Kalpana, S.A.C. Pilani, Rajasthan, India²Associate Professor, Department of Rasashastra, MSM Institute of Ayurveda, BPS Mahila Vishwavidyalaya, Khanpur Kalan, Sonipat, Haryana, India

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ABSTRACT

Kasisa is an important mineral drug widely used in bhasma (incinerated) form in Ayurveda therapy for its hematinic value. Due to its iron contents, it is helpful in the treatment of anaemia and menstrual disorders. Iron sulphate is termed as Kasisa in Ayurveda. Kasisa bhasma is calcined form of iron sulphate which enhances its bio-availability as compared to raw ferrous sulphate. The preparation of bhasmas (calcined form of mineral) from raw material is very complicated and require proper understanding of basic fundamentals of Rasshastra (Iatrochemistry). This understanding starts from identification of authentic raw drugs, collection, Ayurvedic purification, and then incineration. This is a tedious job which requires a sound knowledge of Rasshastra from literature and then can be applied practically. The present work aims at gathering critical knowledge on Kasisa (Green vitriol) with the help of important texts of Ayurveda with a special screening through the texts of Rasshastra for proper understanding of the mineral drug Kasisa. With the proper knowledge on Kasisa, its potentials can be practically proven by the help of modern science. This can upgrade the therapeutic potential of the drug.

Keywords: Kasisa, Charak Samhita, Sushrut Samhita, Ashtang Hriday, Incineration of Kasisa**INTRODUCTION**

Kasisa is an important drug of Rasshastra grouped under Uparasavarga¹. It has various synonyms like Pamshuka, Pamshukasisa, Khaga². It is a green coloured mineral of iron which is chemically ferrous sulphate. Therapeutically it is applied for various therapeutic uses in anaemia, hair growth modulator, eye-

disorders, skin disorders etc. As it is said clearly in Ayurveda that theoretical as well as practical knowledge are the two wheels of treatment. Without sound theoretical knowledge, it is impossible to gain practical experiences. Hence an attempt has been done to cover the maximum possible areas regarding drug Kasisa to emphasise its proper understanding.

Chronological Review**Table 1: Charak Samhita**

Reference	Indication	Form of application
Charak Chikitsa 7:102	Kushta	Lepa
Charak Chikitsa 7:109	Kushta	Lepa
Charak Chikitsa 7:114	Kushta	Lepa
Charak Chikitsa 7:117	Kushta	Lepa
Charak Chikitsa 7:167	Kushta	Lepa
Charak Sutra 3:5	Kushta	Lepa
Charak Sutra 3:10	Kushta	Lepa
Charak Chikitsa 21:126	Visarpa	Lepa
Charak Chikitsa 26:271	Khalithya	Taila preparation
Charak Chikitsa 30:79	Yoni roga	Varthi preparation
Charak Chikitsa 30:121	Yoni roga	Varthi preparation
Charak Chikitsa 25:117	Vruna	Lepa

Table 2: Sushrut Samhita

Reference	Indication	Form of application
Sushrut Chikitsa 1:96,97	Pandukarana	Pralapa
Sushrut Chikitsa 1:96,97	Romasanjanana	Lepa
Sushrut Chikitsa 18:54	Galaganda	Avachurnana
Sushrut Chikitsa 19:40	Upadamsa	Avachurnana
Sushrut Chikitsa 20:21,22	Alasa	Pratisarana
Sushrut Chikitsa 25:32	Kesa ranjana	Saireyakadi Taila
Sushrut Uttartantra 11:16	Praklinna varthma	Anjana
Sushrut Chikitsa 12:15	Sirotpata	Anjana

Susrut Uttartantra 12:18	Siraharsha	Anjana
Susrut Uttartanta 12/23	Arjuna	Anjana
Susrut Uttartantra12/46	Puyalasa	Anjana
Susrut Uttartantra17:43,44	Kaphaja Timira	Anjana
Susrut Chikitsa1:60	Vruna	Rasa kriya

Table 3: Ashtanga Hridaya

Reference	Indication	Form of application
AshtangHridayaChikitsa 16/56	Kumbha Kamala	Churna + Milk
AshtangHridayaChikitsa 18/26	Visarpa	Lepa
AshtangHridayaChikitsa19/67,71	Kushta	Avachurnana
AshtangHridayaChikitsa18/26	Visarpa	Lepa
AshtangHridayaChikitsa19/73	Kilasa	Lepa
AshtangaHridayaUttarsthan11/5	Puyalasa	Anjana
AshtangHridaya Uttarsthan16/40	Netra kandu	Anjana
Ashtang Hridaya Uttarsthan16/55	Pakshamashata	Anjana
AshtangHridayaUttarsthan24/28	Indralupta	Lepa
AshtangHridayaUttarsthan 11/6	Krimigranthi	Pratisarana
AshtangHridayaUttarsthan 25/40	Vranavasadana	Lepa
AshtangHridayaUttarsthan 34/15	Upadamsha	Lepa
Ashtang Hridaya Uttarsthan34/51	Yonivyapada	Taila Pichu
AshtangHridayaUttarsthan34/55	Yonivyapada	Churna

Table 4: Rasa classics

Name of the classical text	Description
Rasarnava	Properties, purification and varieties of Kasisa in a systemic manner
Rasprakash Sudhakar	Properties, purification methods of Kasisa. He also mentioned properties of Rasakarpura
Rasaratna Samuchchaya	sources, varieties, properties, Shodhana, Marana, Satvapataana of Kasisa in magnificently
Rasatarangini	21 st tarang (Updhatvadi Vigyaniya adhyaya) mentioned thoroughly the synonyms, varieties, properties, Shodhana and Marana, dose of Kasisa decently.
Ayurved Prakash	Types, properties

Sources of Kasisa

Natural-It occurs in nature as a decomposition product of iron sulphide.

Artificial-It occurs in crystalline and massive forms. Its colour is green.

In market, it is obtained by the name of Hirakasisa.

Natural Sources of Kasisa

Most probably Kasisa is obtained from where iron is obtained and some places from where Shilajit, Sphatika, Suvarna Makshika is occurred. Kasisa is obtained in natural form where there are hot springs of sulphur. Thus sulphur get reacted with iron in the earth and ferrous sulphate and other compound of sulphur are formed.

There are some places in India where Kasisa is obtained. They are Bihar, Orissa, Punjab, Uttar Pradesh, Kashmir and Baluchistan.

Varieties of Kasisa

Table 5: Types of Kasisa

Reference	No.	Varieties
Rasarnava (Based on colour)	3	Shukla(White) Krishna(Black) Peeta(Yellow)
Rasratnasamuchchaya	2	Baukakasis Pushpakasis
Ayurved Prakash (Based on structure)	3	Kasis Dhatukasis Pushpakasis
Rasjalnidhi (Based on colour)	4	Shwet(Balukasis) Peeta(Pushpakasis) Harit(Kritrim kasis) Shyam(Dhatukasis)
Ras tarangini	2	1.Churna Kasis(white and slight yellow) 2.Pushpakasis(clear green colour)

Grahyagrahyata (Acceptability)

In Samhita, clear description of Grahyagrahyata of Kasisa is not described. The Kasisa of greenish yellow which is called Pushpa Kasisa is the best variety and can be used for the medicinal purpose in human being. In Charaka and Sushruta Samhita two types of Kasisa are mentioned and Acharya Yadavaji Trikamji has followed them and has given his opinion also about

artificially prepared Kasisa to be used for therapeutic purpose. Valuka Kasisa which is obtained in natural form i.e. dust form is not used for the medicinal purpose. Nowadays Kasisa, which is sold in the market, is artificially prepared with iron and sulphuric acid. So if this way Kasisa is prepared with poor quality of iron which reacts with sulphuric acid and then it also becomes poor in quality.

Kasisa Sodhana (Purification of kasis)

Table 6: Purification of Kasisa

Shodhana dravya	Procedure	Yantra	Reference
Pancha Pitta (Varaha, Chaga, Mahisa, Mayura, Matsya nimajjana or Bhavana)	Bhavana	Khalva	Rasarnav 7/82, RasratnaSamucchaya.3/54
Stri Sonita	Klinna	Khalva	RasRatnaSamucchay 3/54
Kasamarda Swarasa	Bhavana	Khalva	Rasarnava 7/82
Rajakoshataki	Bhavana	Khalva	Rasarnava 7/82
Bhringaraja Swarasa	Klinna	Khalva	RasRatnaSamucchay 3/54
Bhringaraja Swarasa	Swedana	DolaYanta	Rastarangini21/230

Kasisa Marana (Incineration of kasisa)

Table 7: Incineration of Kasisa

Bhavana dravyas	Type of puta	Bhasma guna	Reference
kanji (7 times);nimbu rasa	Laghu	Lohita varna, niramla	Rastarangini21/255-258
Snuhipatra swarasa	Laghu	Niramla	Rastarangini21/259
Nimbu Swarasa	Putra with 10 prasta vanopala	Niramla, gairika varna	Rasaamritam

Therapeutic properties of kasisa

Table 8: Efficacy of Kasisa

Rasratna Samucchaya ³	Rastarangini ⁴	Ayurved Prakash ⁵
1.Vishapaham (Detoxify poisons or poisonous effects)	1.Vishaghnam(Detoxify poisons)	1.Kanduvishspranut
2.Shwitragnam (destroy leucoderma)	2.Shwitragnam(destroy leucoderma)	2.Keshya
3.Keshranjanam (Hair moulding effect)	3.Kachranjanam(blackening the hair)	3.Netryam
4.Netryam (good for eye diseases)	4.Netryam(good for eye diseases)	4.Vaatshleshmahara
5.Destroy vaatodbhava and kaphodbhava disorders	5.Vaatshleshmaamayaharam	5.Mootrakricchaashmarishwitrashnam
6.Vranaghnam (Wound healer)	6.Mootrakricchapranashnam (Destroy dysuria)	6.Vaatshleshmahara
7.Shwitrakshayaghnam (destroy leucoderma and kshaya)	7.Kandupaandukrimighnam (destroy itching, anaemia, worms)	
	8.Raktasanjanam (Hemetenic effect)	
	9.Rajahpravartakam (menstrual regulator)	
	10.Balya, Jwaraghna, Pleehanashan(destroy splenomegaly)	
	11.Constrictor if applied externally	

Dose of Kasisa bhasma

- 1/2 Ratti-2 Ratti⁶
- 1Ratti-2 Ratti⁷

Anupana

Kasisa bhasma should be given with triphala churna and honey. (Rasamritam)

Artificial Preparation of Kasisa⁸

We can see reflection of this in the text Rasatarangini. Pure Iron powder is taken in a glass container and diluted sulphuric acid is added drop by drop until iron powder is dissolved completely. When sulphuric acid is added, Iron powder becomes hot and froth is formed in the liquid. When froth stops, solution is filtered through filter paper. Fluid part is collected properly and same part pure alcohol is added to that, so that precipitation takes place and Kasisa gets settled at bottom. Supernatant fluid is separated and Kasisa settled at the bottom is collected and

dried in sunlight. After drying we get green coloured crystals of Kasisa.

Toxicological evaluation of kasisa bhasma⁹

Kasisa Bhasma is safe in rats up to dose level of 112.5 mg/kg/day when administered for 28 consecutive days.

Modern aspect of kasisa

The mineral of iron sulphate is melanterite. Kasisa is hydrous ferrous sulphate (FeSO₄.7H₂O), also known as Green vitriol or copperas or melanterite mineral. It is monoclinic and prismatic class. Crystals are very rare. It occurs widely as earthy, fibrous or capillary crusts or efflorescence on the walls and timbers of mine workings and it is commonly associated with chalcantite, gypsum and other hydrous basic sulphates. It is a secondary mineral, result from decomposition pyrites in the zone of oxidation and is found in small quantities wherever pyrite occurs, especially pyrite, marcasite (white pyrite FeS₂ identical with pyrite), chalcopyrite and pyrrotite. Various shades of

green colour are seen. After exposure, often looks yellowish. It is abundantly found in Germany, Bavaria, Sweden, Spain and U.S.A. But melanterite does not occur abundantly enough in nature. The drug is odorless and has a saline, astringent taste. On heating water comes out from it. This water is known as water of crystallization which yields white crystals of Kasisa.

Ferrous sulphate is least expensive and widely used in ink industry as well as for medicinal purpose chiefly as iron supplements.

Medical Uses: Together with other iron compounds, ferrous sulphate is used to fortify foods and to treat iron deficiency anaemia. Constipation is a frequent and uncomfortable side effect associated with the administration of oral iron supplements. Stool softeners often are prescribed to prevent constipation¹⁰.

CONCLUSION

Kasisa is extensively used as a hematinic drug alone or in combination. With the appropriate knowledge of it in Ayurveda as well as modern parameters, it can be taken for further researches. There are some therapeutic indications of Kasisa which are to be needed for further researches experimentally as well as clinically.

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