

BRIEF REVIEW OF GANDHAKA WITH IT'S KUSTHAGHNA PROPERTY

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ABSTRACT

Gandhaka (sulphur) is the first mineral drug in 'Uparasa group'.^[1] It is a multi-valent non-metal which is abundant. In its native form, sulphur is a yellow crystalline solid, which is odourless and tasteless. In *Rasashastra*, *Gandhaka* stands next to *Parada* in importance. It is considered as an essential agent for the various process of *Parada* such as *Murchchana*^[2] and *Jarana*^[3] etc. It is believed to impart many desirable properties to *Parada* and reduce its toxic effects.^[4] Probably because of this, *Parada* is mostly administered internally in association with *Gandhaka*, as *Parada* preparation without *Gandhaka* is considered to be more toxic. In addition to its value for making the

Parada therapeutically useful, it is also used in various processes of *Parada* such as *Murchchana*, *Jarana*, *Bandhana* etc. In ayurvedic text *Gandhaka* is described as *Kushthagha*. Due to its antimicrobial and antifungal property it works on skin disorders. Almost maximum type of ayurvedic formulation used for skin disorder have *Gandhaka* as ingredient.

KEYWORDS: *Gandhaka*, *Uparasa*, *Parada*, *Kushthagha*.

INTRODUCTION

Gandhaka is a widely used drug in Ayurveda and other system of medicines from ancient time. It is called as 'Shulvari' (enemy of copper). In modern chemistry its symbol is 'S'. The latin name for this element is 'Sulphurium' which means 'Burning Stones'. *Vrihatrayi* has used *Gandhaka* both internally and externally in skin disorders. In the *Rasashastra* classics, *Gandhaka* holds a very important place and is used extensively in *Parada* related processes and as a ingredient in various formulations. In *Rasashastra* *Gandhaka* is placed in *Uparasa*

varga and Parada is considered as Maharasa. According to Rasashashtra Gandhaka stands next to Parada in importance.^[5]

Nirukti - "*Tivra gandhatvam iti gandakah*".^[6] The substance which possesses strong smell is called Gandhaka. Due to its pungent odour, it is known as Gandhaka.

- ◆ **Sanskrit name** - *Gandhaka*
- ◆ **Hindi Name** - *Gandhaka*
- ◆ **Chemical/English Name** - Sulphur
- ◆ **Chemical Formula** - S
- ◆ **Synonyms** - *Gandhpashan, Rasgandhaka, Putigandha, Pamari, Kitnashana, Kushthari, Shulvari, Keetaghna, Gauribija, Lelitaka, Gauripuspa.*

◆ **Historical background**

Gandhaka have mentioned in all the *Brihatrayis*. After it all texts of *Rasashastra* have mentioned it.

❖ **Occurance**

According to ancient text '*Shweta Dvipa*' and '*Khsira Sagara*' are its places of origin. Probably these are suggestive of an island of Sicilly and *Himalaya* or Indo-Iranian region respectively.^[7] Sulphur occurs naturally near volcanoes. Native sulphur occurs naturally as massive deposits in Texas and Louisiana in the USA. Other leading producers of sulphur are Canada, Japan, Poland, and Soviet Union.

However, it occurs more abundantly in the combined state as –

◆ **Sulphide ores**

Copper and Iron pyrite (*Swarnamakshika, Roupymakshika and Vimal*), Copper sulphate (*Sasyaka*), Ferrus sulphate (*Kasaisa*), Galena (*Neelanjana*), zink sulphate (*Yashada*), antimony sulphide (*Strotonjana*), Orpiment (*Haratala*), Realgar (*Manhashila*), Cinnebar (*Hingula*).

◆ **Sulphates**

Gypsum ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$), Celestite (SrSO_4), Heavyspar (BaSO_4).

◆ **Hydrogen Sulphid**

In spring water, coal gas, sewage gas, etc. sulphur forms an essential constituent of many natural products of plant and animal origin, e.g. garlic, mustard, egg, hair, protein etc.^[8]

Important Characters of Sulphur^[9]

Atomic no	: 16
Atomic mass	: 32.06 g /mol-1
Solubility in water	: Insoluble
Hardness	: 1.5 to 2.5
Specific gravity	: 1.9 to 2.1
Melting point	: 112.8 ⁰ C
Boiling point	: 444 ⁰ C (832 ⁰ C)
Freezing/Melting point	: 110-119 ⁰ C (230_246 ⁰ F)
Auto-ignition temperature	: 248-266 ⁰ C (478-511 ⁰ F)

❖ Classification of Sulphur

Two, three & four varieties of *Gandhaka* described in a *Rasagranthas*, but ancient texts like- *Resendra Mangal*, *Rasa Hridaya Tantra* etc. do not described variety of *Gandhaka*.

Table:- Showing varieties of *Gandhaka* in different texts:

(1) Table no. 1: Three types (Ras Ratna Samuchchaya 3/12-15).

Name	Colour	Quantity
1. Shukachanchunibha	Reddish	Shreshtha
2. Pita varna	Yellowish	Madhyama
3. Shweta varna	Pale white	Adhama

(2) Table no. 2: Two types (Rasendra Purana).

Name	Acceptable variety
1. Loniya	Aamalasara
2. Aamalasara	

(3) Table no. 3: Four types (Ras Ratna Samuchchaya 3/12-15).

Name	Colour	Quality	Utility
1. Rakta varna	Reddish	Uttama	Dhatuvadārtha
2. Pita varna	Yellowish	Madhyama	Ras-rasayanārtha
3. Shweta varna	Pale white	Adhama	Lepanārtha and Louha maranārtha
4. Krishna varna	Blakish	Durlabha	Jaramrityuhara

❖ Properties of Acceptable variety^[10]

The *Gandhaka*, which resembles the colour of ‘*Shukapiccha*’ (feathers of parrot; yellowish green), which is as soft as butter, smooth but hard and unctuous (*snigdha*); is considered as the best variety of *Gandhaka*.

Table no. 4: Showing the Properties of *Ghandhak* according to their varna type.

S.No.	Colour	Quality	Use
1.	<i>Shweta</i> (White)	Inferior	<i>Marana</i> of metals
2.	<i>Shuka picchha</i> (Yellow)	Medium	<i>Ras</i> therapy
3.	<i>Shuka Chanchu</i> (Rakta, Red)	Superior	<i>Louhavada</i>
4.	<i>Krishna</i> (Black)	<i>Durlabha</i> (Rare)	<i>Dehavada</i>

❖ Effect of Ashodhita Gandhaka^[11]

If *Asodhita Gandhaka* is taken internally it produces many undesirable effects and disorders in the body, viz.

Dearrangement of *Pitta - Rakta* equilibrium in body

- Pyrexia
- Giddiness
- Mental disorders
- Dermal disorders
- Loss of strength, vitality and appetite

Hence, In *Ayurveda* it is advised that *Gandhaka* should always be subjected to *Shodhana* process before prescribing for therapeutic purposes.

❖ Management of Complications^[12]

Use of milk with ghee is indicated in the management of such complications by the *Rasendra Sar Sangraha* and *Rasendra Purana* etc.

❖ *Shodhana* Method

There are several methods for the *Shodhana* of *Gandhaka* but the commonest method consists of its melting in an iron spoon smeared with ghee by heating and filtering it through the cloth in the cow's milk repeatedly for 3 or 7 times. Then wash it with hot water and dry.^[13]

Other method of *Gandhaka shodhana* are given below:-

- ◆ *Bhavana* method
- ◆ *Patana* method
- ◆ *Dhalana* method
- ◆ *Swedana* method

❖ Effect of *Shodhana*

Gandhaka, after undergoing *Shodhana* treatment becomes free from *dosha* (visha & shaila) & impurities (undesirable substances) and untoward toxic effects and may not cause any undesirable symptoms in the body even if the pathyapathya schedule is not followed properly.

❖ Properties of *Gandhaka*

- ◆ *Ras* : *Katu, Tikta*
- ◆ *Guna* : *Snigdha, Sara*
- ◆ *Virya* : *Ushna*
- ◆ *Vipaka* : *Katu. Madhura*
- ◆ *Doshakarma* : *Kapha Vatahara and Pittajanana*

Sansthanikakarma : *Dipana, Pachana, Amajirna Prashamana, Sara, Vishaghna, Balya, Yogavahi.*

Therapeutic Use : *Kandu, Kushtha, Visarpa, Dadru, Krimi, Kasa, Shwasa etc.*

- ◆ **Dose** : *125 mg to 1 gm. (of purified sulphur)*
- ◆ **Anupana/Sahpana** : *Ghee and Sugar, Cow's milk*
- ◆ **Important formulations** : *Kajjali, Rasa-sindura, Rasa Parpati, Gandhaka Rasayana, Gandhaka Tail, Gandhaka Ghrita etc.*

❖ Uses of Sulphur in *Rasashastra*

Sulphur is considered most valuable element of various purposes in *Rasashastra*. These are given below like -

- ◆ Use for *Murchhana* process of *mercury*^[14]
- ◆ Use for *Jarana* process of *mercury*^[15]
- ◆ To Reduce toxic effects of *Parada*
- ◆ Use for *Marana* of metals^[16]
- ◆ Use as a *Vida dravya*^[17]
- ◆ To make therapeutically useful for mercury – Probably because of this mercury is mostly administered internally in association with sulphur, as mercury containing preparations without sulphur are considered to be more toxic.
- ◆ Used for the *Bandhana* (solidification) of mercury.^[18]
- ◆ In manegment of *ashudha Parada seven dosha*.^[19]

❖ Physical Properties of Sulphur

Sulphur is a yellow solid with no taste and odour. It is freely soluble in carbon disulphide but insoluble in water and sparingly soluble in alcohol and ether. Its vapours are poisonous for bacteria and fungi but not for animals or human beings. Sulphur is soluble in *Til Taila* in the Ratio of 1: 16, when heating it at low temperature.

References of Kusthaghna Property of Gandhaka In Various Rasa Granthas

Following references of Rasa *granthas* shows *Kusthaghna* property of *gandhaka*:-

- (1) शुद्धगंधो....कुष्ठमृत्यु....करोति च || R.R.S. 3/45
- (2) गन्धाश्म.....कंडुकुष्ठ || R.R.S. 3/17
- (3) नारिकेलस्य तैलेन...पामा नश्यति.....सुदारुणा || R.T. 8/54
- (4) विशोधितं गन्धकं....गलत्कुष्ठं निहन्त्यलम् || R. T. 8/58
- (5) गन्धः शुद्धो...क्षुद्रकुष्ठेभसिंहः || R.T. 8/36
- (6) गन्धकःकुष्ठक्षय.....रसायनः || B.P.
- (7) गन्धका.... कृमिकुष्ठविनाशनः || Rasamrita

Due to *Katu & Tikta ras*, *Snigdha & Sara Guna*, *Ushna Virya*, *Madhura & Katu Vipaka*, *Yogavahi and prabhava property Gandhaka is kusthaghna*.

Gandhaka plays a important role for the maintenance of health as skin, connective tissue, muscles, bones, teeth and hairs and also controls metabolic process which is a key factor for the body. Due to antimicrobial, antifungal and insecticidal (*Krimighna*) property Gandhaka is used in skin disorders.

DISCUSSION

In Samhita period, therapeutic application of Gandhaka externally and internally for the diseases Kustha, Krimi, etc. gives indications that the Acharayas were well known of the therapeutic properties of Gandhaka. According to Rasashastra, Gandhaka stands next to Parada in importance. It is an essential agent for the various processes of Parada such as Murchhana, Jarana, Ranjana and Bandhan^[20] etc. It is used as Bid Dravya and mentioned in various Bida Yoga.^[21]

In Rasashastra Gandhaka is used as shuddha gandhaka, gandhaka tail, gandhaka druit, gandhaka rasayana and as a ingredient of other aushdha yogas for curing various diseases specially Twak vikar (Kustha).

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10. A.P. 2/20.
11. A.P. 2/18.
12. V.R.R.S, P. dattarama Choube, 57.
13. R.T. 8/7-11.
14. R.T. 6/2.
15. A.P. 1/114.
16. R.T. 6/2.
17. R.R.S. 8/84.
18. A.P. 2/7.
19. R.Pu. 4/92.
20. R.H. T. 3/20.
21. R. R. S. 8/86.