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A literary review of *Tamra* (copper) w.s.r. to its role in Hepatomegaly

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ABSTRACT

Rasashastra is a branch of Ayurveda dealing with metal & minerals. The *Rasa Aushadhi* are the backbone of Ayurvedic medicine. Metal and mineral are the integral part of therapeutics in Ayurveda and *Tamra* is one such metal which is highly poisonous & several times more poisonous than poison itself because one poison cause only one *Dosha* (toxic effect) while unpurified and unreduced *Tamra* may have eight *Dosha*.^[1] Which has been described as *Ashtamahadosa* in classical text book. but if this *Tamra* is well processed through all pharmaceuticals process, it can be converted into one of the best and effective medicine. *Tamra Bhasma* is useful in treatment in various disease condition like *Udar Vyadhi*, *Pandu*^[2] etc. In this study a descriptive study of *Tamra* and its therapeutic potential basis which are mentioned in our classical Ayurveda textbook with special reference to its role in Hepatomegaly is studied by searching and analyzing all Ayurvedic and all modern perspective.

Key words: *Tamra*, *Copper*, *Hepatomegaly*.

INTRODUCTION

The foundation of Ayurveda is based on 8 branch. (Asthang Ayurveda).^[3] The number of metal found in nature is abundant according to classical text book, these metal are formed as *Dhatu*. In *Rasashastra Dhatu* are 8 in numbers. These *Dhatu* is useful for human for treatment of many diseases like *Jwara*, *Khalitya*, *Palitya* etc. among 8 *Dhatu*, *Tamra* is one of them. The word *Tamra* indicate a substance which produce are cause giddiness when consume in impure. *Tamra* after *Shodana*, *Marana* process *Shodhit Tamra* is used for medicine in different medical conditions.

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AIM AND OBJECTIVES

Literary study of *Tamra* from various classical text book with special reference to *Tamra Bhasma* in Hepatomegaly.

MATERIALS AND METHODS

1. Source of data - literary study done by collecting data from *Bruhatrayi*, *Laghutrayi* & all *Rasashastra* classical text book.
2. Including journal, website, internet
3. Previous work done.

REVIEW OF LITERATURE

Tamra

Tamra has a long history, its references (as coin, utensil, ornaments) can be readily traced from different literatures like Veda, Upanishada, and Purana, its use as a medicine is seen in the field of Ayurveda, since the beginning. In many places of Charaka Samhita we find the references of *Tamra* and its *Visha Lakshana*. With the evolution of *Rasashastra* metal was extensively studied described and used for its therapeutic use.

Mythological origin

1. According to ancient mythological views it is described that *Tamra* is originated from the semen of Kartikeya which fell on earth.^[4]
2. According to *Rasamritam*, *Shulba* is originated from Sun.^[5]

Tamra synonyms^[6]

Tamra, Sulba, Raktaka, Mlecavakra, Nepaliya, Tryambaka, Suryaloha, Twastra, Arka, Bhanuloha, Raviloha, Ushnanshu Sahashranshu and all the synonymous word used for Sun as *Dwista, Dwayadasta, Ambaka, Udumbara, Aravinda, Suryang* etc.

Collection

In nature it is found in both *Naisargic* as well as in *Yougik* form. In India it is found in Simhabhumi, district of Bihar (Ghatasila) and in Khetri of Rajasthan.

Pharmacological Properties

Rasa - Tikta, kasaya

Guna - Sita, laghu, Sara

Virya - Ushna

Vipaka - Katu

Karma - Kapha, Pittahara, Lekhana, Hridvishodhana, Krimighna, Garahara, Rasayana, Ropana, Netrya.

Types of Tamra^[7]

SN	Tamra type	Origin	Quality
1.	Nepali of Nepalika Tamra	Nepal	Shreshtha and Grahya
2.	Malecchha	Yauvan Desh	Kanishtha and Agrhya

Tamra Grahya Swarupa^[8]

The *Tamra* which is smooth, soft, hard, clean, resembles the colour of *Japa* is best variety.

The *Tamra* which is free from adulterant like iron, lead etc. is considered as the *Kusum*.

Tamra Agrahya Swarupa^[9]

The *Tamra* which comes with layers, which has whitish body shade, which has very hard or light weighted or

brittle, which has adulterant like iron, lead etc., such a metal should not be selected for pharmaceutical procedures.

Tamra Astadosha^[10]

Tamra Visha produces 8 types of *Visha Lakshana*. 1. *Bhrama* (Giddiness), 2. *Murccha* (Syncope), 3. *Vidaha* (Burning sensation), 4. *Sweda* (Perspiration), 5. *Kleda* (Excessive sebaceous secretion), 6. *Vamana* (Vomiting), 7. *Aruchi* (Anorexia), 8. *Cittasannipata* (Restlessness).

Tamra Samanya Shodhana^[11]

The thin sheet (*Kantakvedhi Patra*) of *Tamra* are heated red hot over fire and dipped into the following liquids, 1. *Tilataila* 2. *Takra* 3. *Gomutra* 4. *Amla* and 5. *Kullatha Kwath* for 7 times in total for 1 drug. It will be 35 times heating and quenching. This process will purify all the metal in general, that is why it is called *Dhatu Samanya Shodhana*.

Tamra Vishesh Shodhana^[12]

The foil of *Ashudhh Tamra* are thickly applied on either side with the paste prepared by triturating required quantities of *Saindhava Lavana, Nimbu Swarasa* together, the foils are now held with *Sandansh Yantra* heated red hot and dipped in a vessel containing enough quantity of *Kanji*.

All these process is repeated for 8 times to obtain the purified *Tamra*. Later it is stored in a suitable air tight container as a *Shuddh Tamra* for further pharmaceutical use.

Need for Shodhana^[13]

Impure *Tamra* is considered highly poisonous and is said to be several times more poisonous than poison itself, because poison possesses only one *Dosha* (harmful effect) while impure *Tamra* may cause eight *Doshas* in the body. Hence it is highly essential to purify *Tamra* with general and specific methods of purification.

Tamra Bhasma dosage^[14]

General Dose of *Amritikrit Tamra Bhasma*; 1/8 - 1/2 *Ratti*. However, dose is finalized after thorough consideration of all relevant factors.

Tamra Bhasma special properties^[15]

The *Tamra Bhasma* obtained after *Amritikaran* is capable of curing all type of *Shakhagata* and *Koshthagata Roga*. It is also useful in *Vataj* and *Kaphaja Roga* of *Jatrugata Bhaga* (neck and above parts)

Tamra Bhasma - Amayik Prayog^[16]

1. *Tamra Bhasma* is added with equal quantities of *Shuddha Parada* and *Shuddha Gandhaka*, triturated with *Nimbu Swarasa* and subjected to required amount of *Gajaputa*. Such *Amritikrit Tamra Bhasma* is administered in the dosage of 1/2 *Ratti* to cure *Hasta Kampa*, *Griva Kampa*, *Pakshaghata* and other such *Vataj Vyadhi* along with desired ratio of *Trikatu Churna* followed by suitable adjuvant. 2. To cure *Murchha* (Syncope) 1/2 *Ratti* of *Tamra Bhasma* is added with two *Ratti* each of *Usira Churna* and added *Nagkeshar Churna* and mixture is administered daily along with cold water.
2. To cure *Bhrama* (giddiness), the *Tamra Bhasma* is added with ghee in desired ratio and administered daily followed by *Duralbha Kwatha*.
3. The *Pittaj* or *Kaphaj Sula Roga* ½ *Ratti* of *Tamra Bhasma* is added with 2 *Ratti* of *Karanj Beej Churna* and the mixture is administered daily with suitable adjuvant.
4. In case of *Pliha Roga* (splenomegaly) half *Ratti* of *Tamra Bhasma* is added with desired ratio of *Trikatu Churna* and *Shankha Bhasma*, the mixture is administered along with suitable adjuvant.
5. In hepatomegaly ½ *Ratti* of *Tamra Bhasma* is added with desired ratio of *Trikatu Churna* and the mixture is administered daily in suitable dosage along with honey.

MODERN REVIEW OF LITERATURE**Copper**

Copper itself is non poisonous, but the salts of copper are poisonous.

General properties of copper

Name - copper

Standard atomic weight - 63.546 (3)

Element category - transition metal

Appearance - red-orange, metallic luster

Atomic number - 29

Symbol - Cu

Group - 11

Block - d block

Copper is chemical element with symbol Cu from Latin name *cuprum*. It is ductile metal with very high thermal and electrical conductivity. Pure copper is soft and malleable; a freshly exposed surface has a reddish-orange color. It is used as a conductor of heat and electricity, a building material, and a constituent of various metal alloys,

Important points of copper

- Copper is ductile, semi-precious metal with very high thermal and electrical conductivity.
- Pure copper is soft and malleable, an exposed surface has a reddish-orange tarnish. It is used as a conductor of heat and electricity, a building material and a constituents of various metal alloys. The metal and its alloys have been used for thousands of years.
- In the roman era copper was principally mined on Cyprus, hence the origin of the name of the metal as cyprium (metal of Cyprus), later shortened to cuprum.
- Metallic copper is not poisonous but some of its salts are poisonous for example blue vitriol (nila tutia) or the sulphate, which occurs in large blue crystals, and the subacetate or verdigris (zangal), which occurs in bluish green mass or powder.
- Two other copper compound, viz. the arsenite and the acetoarsenite, have already been considered along with arsenic. Copper is a powerful inhibitor of enzymes.

Chemical properties

Copper does not react with water but it does slowly react with atmospheric oxygen to form a layer of

brown black copper oxide which, unlike the rust which forms when iron is exposed to moist air, protects the underlying copper from more extensive corrosion. A green layer of verdigris (copper carbonate) can often be seen on old copper constructions such as the statue of liberty. Copper tarnishes when exposed to sulfides, which react with it to form various copper sulfides.

DISCUSSION

Metals are used in various disease conditions from Vedic period, but this use increased after development of Rasashastra, which is integral part of Ayurveda.

Bhasma of metal and minerals are one of the suitable pharmaceutical forms in *Rasashastra*, *Tamra Bhasma* is one among them. *Tamra* is said to be poison or more poison if used in impure form.

Through wide utility of *Tamra Bhasma* has been mentioned in Rasa classical text book, so it's time to understand and update these classical principles. *Bhasma* were administered by mixing with suitable herbal powders and adjuvant. The dose was ranging in between 1/8 to 1/2 *Ratti*.

In Ayurvedic Literature many herbal, herbo mineral and mineral formulation were advised for the treatment of liver related disorder, *Tamra Bhasma* is one among them.

Tamra by its *Ushna*, *Teekshna* & *Srotoshodhaka* property at on the liver and induce secretion and circulation on *Vikartt Pitta*. It reduce inflammation with its *Lekhana* property.

The main action of *Tamra Bhasma* is on liver which stimulate bile secretion from the liver and gall bladder. Therefore, it moments increases peristaltic eases digestion and stimulate *Agni* in Ayurveda. *Tamra Bhasma* is a drug of choice for liver and spleen enlargement. It reduces the size. Liver by alleviating inflammation because of its effective study in Hepatomegaly it require further study to evaluate the effect of *Tamra Bhasma*.

Caution & Side Effects

The excess dosage or wrong administration of *Tamra Bhasma* can result in severe side effects including.

1. Nose bleeding
2. High blood pressure
3. Anal fissure
4. Mouth ulcer
5. Vertigo
6. Nausea
7. Vomiting
8. Diarrhea
9. Bleeding disorders

Contraindications

Tamra Bhasma in following diseases:

1. Anal fissure
2. Bleeding disorders
3. Heavy menstrual bleeding
4. Excessive uterine bleeding
5. Nosebleed
6. Kidney (renal) failure or kidney impairment
7. Diarrhea discharge without mucus
8. Sunburn

CONCLUSION

Metal and minerals are the integral part of therapeutic in Ayurveda. *Tamra* is one such metal been advocated in different forms in the management of various diseases. Classical text emphasized on *Shodhana* and *Marana* while preparing *Bhasma* of the metal. *Tamra Bhasma* contain either sulphide or oxide of copper. The difference in chemical forms of incinerated copper show that *Bhasmas* prepared in different media have different compositions and have different reactions. It shows that prepared *Tamra Bhasma* is safe to be used under the supervision. The article was limited to literally review. All the study shows that the classical principle has their own rationales value which need to be studied and followed well.

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