



A CONCEPTUAL REVIEW OF THERAPEUTIC EFFICACY OF TAMRA BHASMA

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Article Received on
16 Jan. 2019,

Revised on 05 Feb. 2019,
Accepted on 26 Feb. 2019

DOI: 10.20959/wjpps20193-13375

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ABSTRACT

Tamra Bhasma is a frequently used bhasma in various diseases. It is also an important ingredient of various Rasakalpa viz. Arogyavardhani Vati, Hridayarnava Rasa, Sootshekhar Rasa, etc. Therapeutic properties of Tamra Bhasma are described in various Rasagranthas. As per various Rasagranthas, Tamra Bhasma is useful in various diseases like Udar, Kushtha, Yakrut-pliharog, Shool, Parinaamshool, etc. A lot of research work has been found to be done on hepatoprotective, anti hyperlipidemic, antioxidant, etc. activities of Tamra Bhasma. Rasakalpa containing Tamra Bhasma are beneficial in various diseases. In present study, a conceptual review has been done regarding various therapeutic properties of Tamra Bhasma and its different formulations along with the related research work.

KEYWORDS: Tamra Bhasma, Rasakalpa, Therapeutic properties,
Rasagrantha.

INTRODUCTION

Tamra is one of the shuddha loha quoted by Rasaratnasamucchaya.^[1] Shuddha loha are considered not to be having any contamination of other loha. These are considered better than other types of loha i. e. Puti loha and Mishra loha. Tamra loha is found to be used since the period of Samhita.

In various Rasagrantha, Shodhan (purification), Maran (incineration) of Tamra dhatu is found to be described in detail along with the therapeutic properties of Tamra Bhasma. As per

Rasaratnasamuchhaya, Tamra Bhasma is useful in the diseases like Parinaamshool, Udar, Shool, Pandu, Jwar, Gulma, Pleeha, Yakrutkshaya, agnisadan, Meha and Grahani.

A lot of research is found to be done on the Pharmaceutical procedures and analytical findings of Tamra Bhasma. Hepatoprotective, anti hyperlipidemic, antioxidant, etc. activities of Tamra Bhasma are also found to be studied.

So, present study is aimed to find out the classical references regarding the therapeutic properties of Tamra Bhasma and also to narrate the research work regarding Tamra Bhasma.

MATERIAL AND METHOD

In Charaka Sutrasthana, Tamra has been coined under category of Parthiv dravyas.^[2] Tamra as an ingredient of medicines has been used in Dwiteeya Brahma Rasayana,^[3] Chaturtha Triphala Rasayana,^[4] Indrokta Rasayana,^[5] Muktyadya Choorna^[6], etc.

In Sushruta Samhita, Tamra has been mentioned under 'Trapwadi Gana' and its properties have been described.^[7]

Properties of Tamra according to various Rasa Grantha are as follows

Sr.	Text	Rasa	Virya	Vipak	Doshagnata
1.	Rasendra Chudamani ^[8]	Tikta, Kashay, Madhur, Amla	Ushna	Madhur	Kapha Pitta Nashak
2.	Rasaratna Samuchhaya ^[9]	Tikta, Kashay, Madhur, Amla	Ushna	Madhur	Kapha Pitta Nashak
3.	Rasendra Saar Sangraha ^[10]	-	Ushna	-	-
4.	Ayurved Prakash ^[11]	Tikta, Kashay, Madhur, Amla	Sheet	Katu	Kapha Pitta Nashak
5.	Anand Kand ^[12]	Tikta, Kashay, Madhur, Amla	Ushna	Madhur	Kapha Pitta Nashak
6.	Rasa Manjiri ^[13]	Tikta, Kashay, Madhur, Amla	Sheet	Katu	Kapha Pitta Nashak
7.	Bhavprakash ^[14]	Tikta, Kashay, Madhur, Amla	Sheet	Katu	Kapha Pitta Nashak
8.	Rasa Tarangini ^[15]	Tikta, Kashay, Madhur, Amla	Ushna	Katu	Kapha Pitta Nashak

Guna-karmas of Tamra described by various texts are listed collectively as- Snigdha, Sara, Lekhana, Laghu, Chakshushya, Agnideepana, Vishaghna, Ropana, Brihana, Balya, Ruchikara, Dridhadhakara, Vajikarana, Vrishya, Prabhavardhaka, Dehalohakara, Gara nashaka, Vibandhanashaka, Rasayana, Veeryavardhaka, Pushtivardhaka, Trishnanashaka, Shoolanashaka, Ayushya, Shukrastambhaka, Urdwa - Adha- Shodhana, Jara - apamrityu nashaka.

Rogagnata of Tamra Bhasma is described by various Rasagrantha as follows-

Ayurved Prakash- Pandu, Udara, Arsha, Gara, Kushtha, Kasa, Shwasa, Kshaya, Peenasa, Amlapitta, Shotha, Krimi, Shoola.^[16]

Rasaratnasamuchhaya- Parinaamshool, Udar, Shool, Pandu, Jwar, Gulma, Pleeha, Yakrutkshaya, agnisadan, Meha and Grahani.^[17]

Rasendrachudamani- Jatharruk, Kushtha, Vishahara, Sthaulyahara, Kshutakara, durnaam, Kshaya, Pandu.^[18]

Rasatarangini- Udarkrimi, Raktavikrutujanyavyadhi, Kushtha, Kaas, Shwaas, Kshaya, Pandu, Vaatakapha Arsha, Grahani, Netrarog, Sthaulya, Jwara, Vrana, Ruchikarak, Garavisha, Udarog, aayurvedhak, Vamak and Virechan.^[19]

Shool, Amlapitta, Yakritpleeha, Apsmaar, Visuchika, Vamanrog, Akshephara, Antrashosha, Agnimaandya, Parinaamshool.^[20]

Dose of Tamra Bhasma- Tamra Bhasma should be administered in 1/8 Ratti (15 mg) to 1 Ratti (120 mg) or by considering the bala of the patient and kala.^[21]

Research studies in context with the therapeutic properties of Tamra Bhasma

1. Hepatoprotective property

In a study, Tamra Bhasma was prepared by two different methods- one from Rasatarangini and other called Somanathiya Tamra Bhasma from Rasaratnasamucchaya. By comparing Biochemical, Histological and Statistical analysis, it was found that both Tamra Bhasma and Somanathiya Tamra Bhasma have significant therapeutic effect on hepatotoxicity. Somanathiya Tamra Bhasma is highly effective among both the bhasma.^[22]

2. Lekhan Property

A study was designed to assess comparison of ponderal and biochemical parameters of Tamra Bhasma and Somanathiya Tamra Bhasma. Decrease in the body weight of Rats was observed in all samples. Results showed significant decrease in serum cholesterol, High Density Lipoprotein (HDL) cholesterol, triglycerides, total protein and serum alkaline phosphatase levels. These results justify the role of Tamra Bhasma in Lekhana (scraps excessive fat) property.^[23]

3. Anti-oxidant effect

Tamra Bhasma inhibits lipid peroxidation (LPO), prevents the rate of aerial oxidation of reduced glutathione (GSH) content and induces the activity of superoxide dismutase (SOD) in rat liver homogenate in the bi-phasic manner. The drug was orally given for 7, 15 and 30 days in different doses. Best protective response was found at the dose of 0.5mg/100g body weight in albino rats, although it showed some histopathological changes at the dose of 20mg/100g body weight. The results suggest that Tamra Bhasma is not merely a source of

copper metal, but it is a strong anti-oxidant with no detectable adverse effect in lower doses of therapeutic range.^[24]

4. Cardio protective Activity

Tamra Bhasma has been described as Medopaha, Lekhan and sthauilyopaha. Tamra Bhasma is used in the treatment of Hridroga (cardiac disorders) especially those related to Medoroga (Lipid disorders). For this various formulations such as Hridayarna Rasa, PrabhakarVati, Kalyan Sundar Rasa etc. having Tamra Bhasma as an ingredient are indicated. This shows that definitely Tamra Bhasma have some effect on heart. Present study has been conducted to study the cardio protective activity of Tamra Bhasma (TB) and Somanathiya Tamra Bhasma (STB). The overall evaluations of biochemical parameters indicate the presence of moderate cardio protective activity in both the samples of Tamra Bhasma with slightly better profile for Tamra Bhasma. SGOT is significantly elevated in myocardial infarction. The elevation observed after isoprenaline injection indicates myocardial injury. This elevation in SGOT was reversed by both Tamra Bhasma (50.96%) and Somanathiya Tamra Bhasma pre-treatment (47.93%) indicating presence of cardio protective activity. In the present study injection of isoprenaline produced decrease only in HDL - cholesterol level, the other lipid parameters were not affected to significant extent. This decrease was reversed in Tamra Bhasma treated group and only a marginal effect was observed in Somnathiya Tamra Bhasma treated group. The results obtained clearly indicate that both TB and STB produce moderate to good attenuation of isoprenaline induced changes in ECG and histological profile. This indicates they have moderate to good cardio protective activity with STB having slightly better efficacy.^[25]

5. Cancer

'Cancer' - this word is not available in any of Ayurvedic texts. In Ayurvedic texts, there are many words that have similar meaning as Cancer and similar diseases/symptoms which match with characteristic of Cancer. Various synonyms like Shoth, Granthi, Arbud, Apachi, Gulma and Vidhradi are found in ancient texts. Following drugs are useful in cancer for internal use- Kanchnar, Gokshur, Nirgundi, Punarnava, Bhumyamalaki, Bhallataka, Ashwagandha, Ahiphen, Rohitak, Hirak Bhasma, Suvarna Bhasma, **Tamra Bhasma**, Shringa Bhasma, Abhraka Bhasma, etc.^[26]

Properties of some Ayurvedic formulations of which Tamra Bhasma is an important ingredient are as follows

1. ArogyavardhaniVati

Arogyavardhanivati is indicated in Kushtha, all types of Jwara, having properties like paachan, deepan, pathya, hridya, medvinaashak, malashuddhikar, kshudhapravartini and is useful in almost all vyadhies.^[27] Studies on the therapeutic effects of Arogyavardhanivati shows following findings-

Hepatoprotective action- Paracetamol produced significantly impaired the liver and kidney functions as assessed through an increase in liver and kidney marker enzymes. Arogyavardhini treated group significantly ($P < 0.05$) prevented this hepatotoxicity and strongly supported by histopathological examinations that revealed AVR shows the protection of liver tissue from PCM induced hepatotoxicity. The current study also proved lipid lowering effect of test drug and reversed PCM induced increments of lipids probably due to cholestasis secondary to hepatic cellular inflammation. Arogyavardhani Vati produces a good hepatoprotective action as well as nephroprotective in spite of its metallic content, especially mercury, which suggests that formulations containing metallominerals have the potential role in classical preparation, i.e., in Ayurvedic formulations like Arogyavardhani Vati.^[28]

Hypolipidemic activity- Arogyavardhini Vati significantly decreased serum cholesterol, triglyceride, LDL, and C-reactive protein (CRP) and significantly increased serum HDL in a dose dependent manner. Arogyavardhini Vati, a traditionally used Ayurvedic medicine may be a useful therapy for hypercholesterolemia through reducing oxidative stress (decreasing MDA and increasing GSH) and lipid levels.^[29]

2. Hridayarnava Rasa- It has been described in Hrudrog chikitsa.^[30] It is having Tamra Bhasma as its main ingredient. Studies shows following findings-

Hridshoola- A fairly good response is observed in the signs and symptoms of Hridshoola by the use of Hridyarnava Rasa.^[31]

Antihyperlipidemic activity- In this study, results revealed that Hridayarnava Rasa prepared from Tamra Bhasma processed in Panchamrita attenuated increased lipid profile and pathological changes in heart, liver, and kidney induced by administration of hyperlipidemic diet. Hridayarnava Rasa has shown mild antihyperlipidemic activity in experimental animals.^[32]

3. Sootshekhar Rasa

Amlapitta- In this study, patients were administered with a combination of Sootshekhar Rasa (125 mg twice a day orally after principal meals) and Avipattikar choorna (5 gm twice a day after principal meals) for 4 week period. Improvement of clinical features like HritKantha daha, Tikta-amla Udgaar, Aruchi, Utklesha, Avipaak, Guruta and klama was found to be statistically significant.^[33]

4. Tamra Parpati- The clinical efficacy of Tamra Bhasma on Yakrit Pliha Vridhhi and Grahani Roga was evaluated in 1968. Tamra Parpati was administered to the patients of Yakrit Pliha Vridhhi and Grahani in a dose of 65-250 mg twice a day with Madhu and other suitable adjuvants like Takra for 30 days. The size of the enlarged liver and spleen was found to be reduced up to 65% with the administration of Tamra Parpati. Relief was also reported by the patients of Grahani.^[34]

DISCUSSION

Tamra is having Snigdha, Sara, Lekhana, Laghu, Chakshushya, Agnideepana, Vishaghna, Ropana, Brihana, Balya, Ruchikara, Dridhadhakara, Vajikarana, Vrishya, Prabhavardhaka, Dehalohakara, Garanashaka, Vibandhanashaka, Rasayana, Veeryavardhaka, Pushtivardhaka, Trishnanashaka, Shoolanashaka, etc. properties. The possible properties which may be useful for Tamra Bhasma to be effective on various diseases can be as follows-

Hepatoprotective- Tamra Bhasma is said to be effective on the diseases of Yakrut (Liver) and Pleeha (spleen). So it may be acting as hepatoprotective. Also agnideepan, vishaghna properties of Tamra may be helping for this. Tamra Bhasma is found accumulated in yakrut and pleeha after administration. It clarifies the use of Tamra Bhasma in Yakrut pleeha vruddhi. Tamra Bhasma is also useful to regulate the secretion of yakrut pitta. So it may be being useful in yakrutshothjanya jalodar vyadhi.

Lekhan- Tamra is having lekhan property, also it is having tikta, kashay rasa and it is kapha pittanashak. So it it may be used for lekhan karma.

Anti-oxidant- Tamra is having properties like balya, vrishya, bruhan, snigdha and laghu. These may be making Tamra to work act as an anti-oxidant.

Cancer- Tamra is a good kapha pittanashak and having lekhan property which may be being useful for treating cancer i. e. the growth in tissue can be treated using Tamra Bhasma. Lekhan property of Tamra Bhasma may be useful for treating kaphaj granthi and gulma.

Amlapitta and Parinaamshool vyadhi- Tamra Bhasma is useful in Amlapitta and Parinaamshool vyadhi as it helps to expel out the accumulated pitta and to regulate the secretion of pitta thereafter. Tamra Bhasma pacifies the pittashay shoth which avoids pittashmari.

Shoolahar- Tamra Bhasma pacifies the kshobh (irritation) in the vatanaadi (nerves), so may be acting as shoolahar.

The formulations having Tamra Bhasma as an ingredient also may be acting on the indicated diseases due to such properties of their ingredients.

The action of Tamra Bhasma can be explained as follows

1. Arogyavardhani Vati- Tamra Bhasma is useful to regulate the secretion of yakrutpitta. This property of Tamra Bhasma may be being useful here to act Arogyavardhani on Kushtha Vyadhi. All the ingredients collectively act as Paachak, Deepak, Vaatanaashak, Amapachan, hrudya, Vishaghna, and Jantughna.
2. Hridayarnava Rasa- Hrudya property of Tamra Bhasma may be useful for Hridayarnava Rasa to be used on Hridshoola. Same may be being useful for acting it as Antihyperlipidemic.
3. Sootshekhar Rasa- Sootshekhar Rasa is mainly used in Amlapitta vyadhi. Tamra Bhasma helps to expel out the accumulated pitta and to regulate the secretion of pitta thereafter, thus it helps to treat amlapitta.
4. TamraParpati- Tamra Bhasma is said to be effective on the diseases of Yakrut (Liver) and Pleeha (spleen). So Tamra Parpati can be used to treat Yakrut-pleehavruddhi.

CONCLUSION

Tamra Bhasma is useful for treating various diseases. It is also an important ingredient of various Rasaushadhies. Tamra Bhasma is a very effective bhasma, provided it is prepared as per the classics and passes all the Bhasma pariksha described in Rasagranthas. It is also important to use it in given proper dose.

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