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A Drug Review of Mandoor Bhasma

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A B S T R A C T : *Ma*ndoor is one of the essential mineral to treat anaemia and other diseases safely . Iron is a main component of *M*andoor bhasma . Acharya Charak has mentioned Mandoor bhasma in herbomineral formulation in *Pandurog chikitsa*(Anaemia). Acharya Vagbhat has mentioned in Ashtanghruday samhita in *Pandurog* (Anaemia) and *Kushtharog* (Skin disease) chikitsa. It plays an important to cure diseases , so it is essential to know about its chemical composition, various process of preparation and action of *M*andoor bhasma. Review of study of *M*andoor bhasma is mentioned in details.

Keywords: *M*andoor bhasma, Charak samhita, Ashtanghruday samhita , *P*andurog, *K*ushtharog

1. Introduction

Mandoor is categorised in updhatu. It is the updhatu of Lauha . Synonymes of Mandoor are Lohakitta, Lohamala, Lohachishta . It is formed by rusting of iron by sun, air, moist etc. so it occures mostly in oxide form which is also called as Iron slag. Its chemical formula Fe2SiO4 i. e. oxide-cum-silicate of iron (Faylite) . As iron is its main component so it is useful in various diseases like Kamala (Jaudice), Pandu(Anaemia), Plihavruddhi (Spleenomegaly) etc. in various herbomineral formulation.

2. Aim and objective

Aim

To study detail review of *M*andoor bhasma

Objective

Study in detail review of *M*andoor bhasma

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1. Material and method

3.1 Table 1 Vernacular name of Mandoor

Sr no.	Language	Vernacular Name
1.	Hindi	Mandoor, Lohakitta etc.
2.	English	Rusted iron, Oxide of Iron.
3.	Kannad	Kitta, Kabbinada Kilabu
4.	Marathi	Mandoor, Loh Ganj
5.	Sanskrit	Lohakitta, Lohamala, Mandoor
6.	Gujarati	Mandura, Lodhano kata
7.	Arabi	Khubsul hedeed
8.	Parsian	Zang e ahana
9.	Bengali	Lohar Gun
10.	Telagu	Innupa Chittum
11.	Tamil	Irumboo Chittumu
12.	Malayalam	Irambak Kittam
13.	Konkani	Lokhanda Ganja
14.	Burmese	Sanpia, Tambia

3.2 Types of Mandoor

Types and characteristics of Mandoor are mentioned in details in Ayurvedprakash are as follows.

1. Mundkitta – Reddish, Guru and Snigdha
2. Tikshna kitta – Black like Anjana, heavy without rocks, holes and fissures.
3. Kant kitta – Reddish yellow in colour, Ruksha, Very Guru, Look like Silver when cut.

3.3 Method of preparation of Mandoor bhasma

1. *S*hodhan by *N*irvapan process in *G*omutra or *G*omutra siddha *T*riphala kwath i. e. red hot Mandoor dipping in *G*omutra or *G*omutrasiddha *T*riphala kwath 7 times.
2. *M*aran process
   Mostly *T*riphala kwath for *b*havana by *m*ardan (Trituration) in *K*halvayantra is used then *g*ajputa given till bhasma formation as per *R*asatarangini.

3.3.1 Table 2 Shodhan of Mandoor by various text

Sr no.	Name of text	Shodhan process	Drug use of shodhan
1.	Yogaratnakar [1]	*Nir*vap	*G*omutra
2.	Rasamrutam [2]	*P*achan	*G*omutra siddha *T*riphala kwath
3.	Rasatarangini [3]	*N*ishek	*G*omutra
4.	Rasartanasamuchchay [4]	*N*irvap	*G*omutrasiddha *T*riphala kwath

3.3.2 Table 3 Maran of Mandoor by various text

Sr. No.	Name of text	Maran drug	Process	Type and no. of Put
1.	Rasatarangini [5]	*T*riphala kwath	*M*ardan	*G*ajputa 30
2.	Rsamrutam [6]	*K*umari swaras	*M*ardan	*G*ajputa 7
3.	Rasaratnasamuchchay [7]	*G*omutra siddha *T*riphala kwath	*Nir*vap	*N*irwap upto swayamjirtva

3.3.3 Guna of *G*omutra (cow's urine) [8]

Rogaghnata : *K*amala (Jaundice), *P*andu (Anaemia), *K*andu (Itching), *K*ilas, *K*ushtha (Skin disease), *K*rimi (worm infection), *G*ulma, *K*as (cough), *S*hwas (Asthama) etc.

Anticancer activity of *G*omutra (cow's urine) also proved as per research work.

Table 4 Properties of *G*omutra(cow's urine) related with its chemical constituent [9]

Sr. No.	Chemical constituent	Use in disease
1.	Ammonia	Stabilise bile , mucus and air of body and stabilise blood formation
2.	Iron (Fe)	Maintain RBC and Hb% Raktadhatuvardhak
3.	Sodium	Purifies blood
4.	Aurum hydroxide	Germicidal and increases immunity (Vrushya property)

3.3.4 Properties of *T*riphala

As per research work Antimicrobial, Antifungal, Antioxident property of *T*riphala proved.

3.4 Factors help for improvement in *G*unas(properties) of *M*andoor Bhasma

1. Rusting process causes Laghutva (lightness) in *M*andoor
2. *K*atu, *T*eekshna, *D*ipan property of *G*omutra (cow's urine).
3. AuOH which is chemical constituent of *G*omutra (cow's urine) which improve tissue regeneration and immunity also helps to increase quality of *M*andoor.
4. *D*ipan , *R*asayan property and Antioxident, Antimicrobial property of *T*riphala also improve quality of *M*andoor.
5. As per research work, Ascorbic acid in *T*riphala increases iron absorption and Phenol decreases absorption of iron (balancing action) which useful during preparation of *M*andoor bhasma.
6. *A*gnisamskar (continuous heat) during maran process i. e. *G*ajputa improve quality of Mandoor.

3.5 Importance of shodhan and maran process

1. *S*hodhan- *D*oshas and *M*ala (chemical and Physical impurities) from *d*hatu removed during shodhan process.
2. *M*aran- Continue samskar of heat till *B*hasmapariksha obtained which helps to convert inorganic compound into organic compound by oxidation process.
3. *B*hasma *P*arikshan-
   a. *V*aritartva- It indicates *l*aghutva of *B*hasma i.e. it become lighter than water.
   b. *R*ekhapurnatva- It indicates minute particle size of *B*hasma which accessible to GIT.

3.6 Table 5 Properties of *M*andoor *B*hasma [10]

Guna	*V*rushya, *S*heeta, *R*uchikarak, *A*gnidipak
Doshaghnata	*P*ittashamak, *R*aktavardhak
Rogaghnata	*K*amala, *s*hoth, *s*hosh, *p*lihavruddhi

Dose: ¼ to 2 ratti (30 – 240 mg): as per *R*asatarangini [11]

3.7 Table 6 Anupana of Mandoor Bhasma according to Rasatarangini [12]

Sr. No.	Disease	Anupan
1.	*S*hoth(swelling)	Punarnavashtak kwath
2.	*K*amala(Jaundice)	Kutaki, Triphala, haridra churna
3.	*U*dar krumi(worm), *s*hoth, *A*rsha(piles),*G*rahani(Irretible bowel syndrome),*P*lihavruddhi(spleenomegaly),*P*andurog(Anaemia)	Vidanga, Triphala,Pachkola, Musta churna
4.	*R*aktakshay(Anaemia)	Rassindur
5.	*S*hoth(swelling), *J*war(Fever), *A*tisar(diarrhea)	Dashmula kshay

3.8 Previous research work:

1. N Singh, P Sarkar *et al* (2010); Lauha Mandoor Bhasma: An accessible appropriate and affordable medicine for Anaemia of adolscents and expecting women; suggested Mandoor Bhasma and Punarnavadi Mandoor also has appreciable and stastically significant result both in Vivo and Vitro means in animal experiment in Anaemia.
2. P. K. Sarkar, PK Prajapati *et al* (2007); A Comparative pharmaceutico and Pharmaco-clinical study of Lauha Bhasma and Mandoor Bhasma with respect to its Panduhara effect; suggested that Mandoor Bhasma was found to be better haematinic than Lauha Bhasma in comparison to reforme standard drug.
3. P. G. Jardar, Jagdeesh M.S. *et al* (2010); Analytical study of Ayurvedic yoga Kshiramandoor; - Kshirmandoor contain (Mandoor Bhasma – 8 pala+ Gomutra – 1 Adhak+Godugdha-1 Prasth) 68.35% Ferric oxide, 0.66% MgCO3, 1.32% CaCO3.
4. Dr. D. *et al* Anradha, M. Srinivasulu *et al* (2012); Clinical study on efficacy of Mandoor Bhasma in management of Panduroga with and without Virechana Karma. Suggested that Mandoor Bhasma has better result in Pandu after Virechan Karma.
5. Dr. Kanase A. , Patil S. *et al* (1997); Curative effects of Mandoor Bhasma on Liver and Kidney of Albino Rats after induction of Auto hepatitis by CCL4; Results show Hepatocurative effect of Mandoor Bhasma in albino rats.
6. P. Prasanna Kumari, VVS. Rama Sastry *et al* (2013) ; Effect of *Kayyonyadi Churna* in the management of Panduroga (Anaemia); Herbo mineral formulation of Mandoor Bhasma in Dose 1 to 2 gram churna with Anupana of Takra shows reduction in clinical symptom and improvement in Hb% with P value < 0.0001.
7. Dr. Ashish Kumar Garai, Moti Rai *et al* (2009); Role of an Ayurvedic compound (Panduhara Yoga) in the management of Iron deficiency Anaemia. (Mandoor Bhasma – 1 part, Amalaki churna-10 part) Panduhar Yoga in Dose: 110 mg/ Kg body weight with Honey for 6 weeks. Panduhar yoga is significantly effective in management of Iron deficiency Anaemia in children. No adverse effect has been notice during drug therapy.
8. Sandhya K. Desai, Soniya M. Desai *et al* (2011) ; Antistress activity of Boerhaavia Diffusa root extract and polyherbal formulation containing Boerhaavia diffusa using cold restraint stress model; - Hydro ethanolic extract of Boerhaavia diffusa (H.E.B.D.) and Polyherbal formulation (PHF 09) of Punarnavadi Mandoor contain Boerhaavia diffusa, Mandoor Bhasma, Varun, Bharangi in animal to cold restraint. Due to cold restraint stress there was imbalance in the level of biochemical parameter like glucose, triglycerides, cholesterol, SGOT, SGPT which were normalised after administration of H.E.B.D. and PHF 09 were found to have comparable antistress activity.
9. Snehal Bavadekar, Aniruddha R Tagare *et al* (2013); Preparation and Physicochemical properties of Mandoor Parpati; with the reference of Siddhayogsamgraha; Analytical study revile that it has Ferric ion 30% to 35% and Ferrous iron 4% to 5% along with Mercury and Sulphur in all three sample of Mandoor Parpati.

4. Observation

1. *S*amskar of *Go*mutra (cow's urine) which contain AuOH help in tissue regeneration and antioxidant property of *T*riphala and *A*gni Samskar (continuous heat) improve quality of *M*andoor.[13]
2. *M*andoor bhasma acts on *R*asadhatwagni and *R*aktadhatwagni as all dravya use in preparation has *d*ipan property.

As per research work Mandoor bhasma has following property

1. Good Haematinic
2. Hepatocurative property
3. In herbomineral formulation like Punarnava Mandoor it has antistress activity, antihypertensive activity and effective in Diabetic neuropathy

5. Discussion

As per research work

1. Mandoor bhasma is very useful in anaemia as compare to Lauha bhasma.
2. Mandoor bhasma in the management of Pandurog with Virechan karma is very effective.
3. Mandoor bhasma also have hepatocurative effect so it can be used in jaundice.
4. Along with Amalaki churna in Panduhar yoga in dose 110 mg/Kg body weight with honey has significant effective in the management of iron deficiency Anaemia in children.
5. In herbomineral formulation Mandoor bhasma along with Boerhaavia diffusa, Varun, Bharangi etc. in animal with cold restraint stress there was imbalance in the level of biochemical parameter like glucose, triglycerides, cholesterol, SGOT, SGPT which were normalised after administration of H.E.B.D. and PHF 09 were found to have comparable antistress activity.

Factors causes increasing efficacy of Mandoor bhasma during process of Mandoor bhasma and importance of analytical test

1. shodhan- During shodhan process of Mandoor in Gomutra or Gomutra siddha Triphala kwath used. As per Ayurveda gomutra has Tikshna , Vishghna property due to which doshas and malas removed from Ashuddha or Raw Mandoor and Agnisamskar i. e. heat which makes hard iron particle of Mandoor into soft i. e. intermolecular distance of molecule of dense iron of Mandoor increases during each procedure of Mandoor shodhan due to which it becomes soft.

2. Maran- During Maran process of Mandoor due to bhawana (Trituration) and agnisamskar of Gajput helps to have more oxidation process of Iron and it becomes more lighter i. e. Laghu.

Bhasma Parikshan

A. Ayurvedic analysis of Mandoor Bhasma

1. Varitartva- It indicates that Mandoor bhasma becomes lighter than water so it floating on water so which indicates becomes accessible to GIT.
2. Rekhapurnatva- It shows that Mandoor bhasma has such a minute particle size that it accumulate in furrows of Fingers. Smaller the particle more the efficacy of drug. So this test indicate its minute size so drug becomes more effective.
3. Nishchandratva- This test shows absence of shiny particle in bhasma which indicates that there is no metal particle present in bhasma and Mandoor bhasma becomes more oxidative stage.

B. Modern analytical test I

1. Ash value indicates there is more % of oxidation takes place.
2. XRD (X ray diffraction) also shows chemical changes in Mandoor takes place due to Maran process.
3. SEM (scanning electron microscopy) shows very minute particle size of bhasma.as it indicates effectivity of drug in small quantity.

As per Ayurveda as every soft organ such as Liver, Spleen, Kidney etc. has origin from *R*aktadhatu so during disease condition of soft organ we needed to improve *R*aktadhatwagni of that soft organ. *M*andoor *b*hasma very useful to improve *R*asadhatwagni and *R*aktadhatwagni of soft organ.

As per above study by improving *R*aktadhatwagni it works on following disease [14]

1. Anaemia (*P*andu)
2. Jaundice (*K*amala)
3. Swelling (*S*hoth)
4. Haematinic disorder

Conclusion

1. Preparation of *M*andoor *B*hasma as per *R*asatarangini is standard method.
2. Vrushya, *R*asayan property of Gomutra. *S*amskar of *Go*mutra (cow's urine) which contain AuOH help in tissue regeneration and antioxidant property of *T*riphala and *A*gni Samskar (continuous heat) improve quality of *M*andoor.
3. *M*andoor *B*hasma is good Ayurved drug formulation in Anaemia.
4. *M*andoor *B*hasma has better *R*as dhatwagni and *R*akta dhatwagni dipan property as it has hepatocurative property.
5. It is one of the best drug in *R*aktaj vyadhi like *K*amala (Jaundice), *P*andu(Anaemia), *P*lihavruddhi (spleenomegaly), *K*ushtha (skin disease), *S*hoth (swelling), etc. It has *Vr*ushya, *R*asayan property so it is effective in *S*hosh vyadhi (weakness) also.

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