ABSTRACT

Medicinal plants are resources of newer drug evolution and form the basis of all alternative medicine system. Mocharasad-redhish brown colored secondary metabolite in the form of exudate from Silk - Cotton Tree (Salmali malabarica) and is in demand in pharmaceutical industries for preparation of formulations used for bleeding disorders. Mochrasa is one of source for the life saving drug and known by synonyms like “Niryasa, Pichha, Pichhalsaar, Salmaliveshtaka, Mochrava, Mochsaar denoting its sticky characteristic. Their therapeutic uses are well described in Ayurvedic, Unani and Siddha literature in various bleeding disorders like menorrhagia, haemoptysis, bloody dysentery, diarrhoea mainly. It has good potential of cooling, demulscent, haemostyptic and astringent nature. Due to its binding nature used to heal wounds, ulcers, inflammation and in skin disorders. It is well known for aphrodisic action in traditional practices as well. It is mild in nature and can be used in pregnant women and children. In Shodhana process of Panchkarma, it is main content of “Pichha basti” which is given per rectal route which proves its mild astringent and styptic action. Main chemical constituents are L-arabose, gallic acid, tannic acid with other alkaloids. Various formulations containing Mochrasa are Sunisnaak Changeri Ghrita, Bilwaadi churna, Kutajastak avhleha, Sammangaadi Churna, Changeri Ghrita etc. Various newer trials for antioxidant, analgesic, hepatoprotective action etc. are going on the basis of properties to revalidate the ancient knowledge. Here is an attempt to through light on collection process, purification and availability of raw drug as well extracts in market by collecting data from various sources on every aspect of Mocharasad and their therapeutic and folklore uses.

KEYWORDS: Salmali malabarica, Exudate, Astringent, Haemostyptic, Bleeding disorders.

INTRODUCTION

Ayurveda is a plant based health care system used since ancient times worldwide. About 80% of population rely on medicinal plants to cure various ailments. Medicinal plants are important source of evolution of new life saving drugs for the majority of the world’s population. Natural products of plant origin are well known for potent pharmacological activities and all plants contain active chemical constituents and combination of secondary plant metabolites such as alkaloids, steroids, glycosides etc. Plants as medicine has been used for traditional healing remedies and the literature of Ayurveda, Siddha and Unani has explained the use of various parts of plants in different dosage forms for the various diseases. (1,2) Mochrasad is one among such drugs used as haemostyptic agent in different formulations indicated in bleeding condition and its therapeutic uses are described in various Ayurvedic treatise. It can be used in bleeding disorders like menorrhagia- bleeding uterine disorder, haemoptysis, influenza, acute dysentery, malena, Ulcers, wound, inflammation etc due to its astringent, haemostyptic, demulscent, cooling and binding properties. Mochrasad was also described as a good Aphrodisic agent since ancient times. (29) Mochrasa is a secondary metabolite in the form of resin a sticky liquid which exudates from natural openings or opening made by insects on the lower part of stem of silk - cotton tree (Salmali malabarica or Bombax ceiba. Salmali malabarica) specially in summer season. (3,9) Here is an attempt to have a critical overview on Mochrasa, its collection process and traditional uses as well as therapeutic uses in nutshell.

Historical Background: Salmali / Salmali Malabarica

In Rigveda, Salmali wood is used to prepare a chariot during marriage ritual and consider as best among trees. (R.V-10/85/20). (4) In “Mahabharat”, it is related to that ‘Pitamaha’ after creating the world, reposed it under the tree ‘Salmali’. In the “Yajnavalkya”, it is mentioned, as it is one of the tree of the infernal regions. Also described in Grhya sutra, Vishnudharma Sutra and Atharva Parisista(3,4)

Habitat and Morphological Features of Source of Mocharasad (5-6)

Botanical name
Salmali malabarica (D.C) Schott & Endl. / Bombax ceiba / Bombax malabaricum D.C

Family name: Malvaceae/ Bombaceae

English Name: Red Silk Cotton Tree

Species: Bombax ceiba Burm. f.

Habitat: It is a tall lofty deciduous tree up to height of 30mt. With typical woody spines on trunk and branches. It is widely distributed throughout India, in Tropical and Subtropical forest up to an elevation of 1500mt. Tree are
leaves during winter month and flowers (fleshy cup-shaped reddish in color) appear during January-March.

**Flowers:** Ornithophilus, Crimson colored flowers.

**Fruits:** Oblong, rounded at base, 5-valved and lined with white silky hairs.

**Seeds:** Black or grey in color, smooth in touch and are embedded in long white wool.

**Bark:** Pale ashy to silvery grey in color colored armed with hard, sharp, conical prickles.

**Leaves:** Palmate type compound leaves and crowded at the ends of branches. They are abruptly digitate and glabrous. Leaflet 3-7, lanceolate type

**Part used:** Resin, Flowers, Fruit, Root, Bark, Thorns

Salmali tree denoted by Raktapushpa (red color flowers), Kanktaadhya (prickles on bark of younger tree), Tuulini (fruits ruture and cotton like fibres resides inside), Sthiraayu (hard bark)\(^{(7,8)}\)

**Varieties:** It is planted as an ornamental tree. In Bhavprakash samhita, Salmali have two varieties which are described as Salmali (Salmali malabarica DC) and other Kuttasalmali (Ceiba pentandra Linn.).\(^{(17)}\)

**Mocharsa**

Mocharsa is sticky liquid exudate comes from fissure on bark of Salmali tree made by insects or due to other reason in summer season and get solidify due to atmospheric temperature.\(^{(9)}\) “Nirysa” as its synonym indicates this nature of resin. Initially it is sticky in nature and dark reddish brown in color and then turns black when get solidify. Its synonyms “Picha”/“Pichalsaar” also suggest its sticky nature. Other synonyms are Mochaahva, Salmaliveshtaka, Mocharsa, Mochaas, Mochaar described in various lexicons of Ayurveda.\(^{(7,10,12)}\)

**Classification of Mochrasa in Ayurvedic Treatise**

**Charak:** Acharya Charak – describes 50 Mahakashaya as a group comprising ten drugs basically with same therapeutic action and availability of drugs in different regions. Mochrasa was classified under Purishangraniya Mahakashya, Shonit-thapan Mahakashya, Vedana-thapan. On the basis of rasa it is kept under Kasya kanda representing its astringent and cooling property.\(^{(11-12)}\)

**Purishangraniya Mahakashya:** (Anti-diarrhoeal action)

The drug which prevents the repeated excretion of stools is known as Purishangraniya. It is mainly indicated in Sanipatattisara and Grahani. The anti-diarrhoeal concept according to Ayurveda is based comprised of two terms of Grah and Sthambhana.

**Grah and Sthambhana:** The drugs which acts as appetizer and digestive while absorbing the fluids is known as Grah. The Grahi and Sangrahi dravya is predominant in Pritivi and Vayu bhutas. Acharya shushruta pointed out Vayu bhuta is responsible factor for Drava soshana while Acharya Sharangdhara consider Ushna veerya responsible for it.\(^{(13)}\)

**Shonit-thapan Mahakashya:** (Anti-haemorrhagic action)
The drugs which will rectify the vitiated blood and provides normalcy is known as Sonitasthanapana. Sonitasthanapana drugs acts as anti-haemorrhagic. Another term Rudhira samsthapana represents those drugs which acts as nourishing and haemetenic.\(^{(14)}\)

**Vedana-thapan mahakashya:** (Anodynes)
The drugs which is used to relieve the pain for particular part of body and which restores normal state is known as Vedana-thapan. Acharya Gangadwara said Vedana-thapan drugs will re-establish the lost sensation in the body.\(^{(13)}\)

**Sushruta Samhita (Acharya Sushruta)**

Mocharsa was described under Priyangvadi gana having properties of Pitta shaman and causes sthambhan. Therefore indicated in condition of Pakwa-atisara, Vrana (promotes healing process) and Raktpitta like disorders of bleeding and can be useful for Sandhan karma in tissue injury cases (joins the broken one or acts connective tissue binding agent) and acts as Vrana Ropana drugs.\(^{(15)}\)

**Astang Hridya (Acharya Vagbhata)**, Mocharasa no specific description.\(^{(16)}\)

In Bhavprakash Nighantu\(^{(17)}\) Acharya Bhava misha grouped the Mocharasa under Vataadi vargh. Properties of Mocharasa are separately described from Saalmali (Salmali malabarica) which is source of Mocharasa as follows.

In other lexicons of Ayurveda\(^{(18)}\), Mocharsa was described among various groups (Varga) like

<table>
<thead>
<tr>
<th>Nighantu/Lexicons of Ayurveda</th>
<th>Mocharsa</th>
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<tbody>
<tr>
<td>Saushrut Nighantu</td>
<td>Priyangvadi Gana</td>
</tr>
<tr>
<td>Astangh Nighantu</td>
<td>Priyangvadi Gana</td>
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<td>Madanaadhi Nighantu</td>
<td>37 th. Gana</td>
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<td>Dhanwantari Nighantu</td>
<td>Aamradi Varga</td>
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<td>Sodhal Nighantu</td>
<td>Aamradi varga</td>
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<td>Madanpala Nighantu</td>
<td>Vaatadi varga</td>
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<td>Kaviyadev Nighantu</td>
<td>Aousadha varga</td>
</tr>
<tr>
<td>Bhavprakash Nighantu</td>
<td>Vaatadi varga</td>
</tr>
<tr>
<td>Raaj Nighantu</td>
<td>Saalmaliedy varga</td>
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<tr>
<td>Nighantushesh</td>
<td>Vrksa kanda</td>
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<tr>
<td>Nighantu Adarsh</td>
<td>Saalmaydairy varga</td>
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<tr>
<td>Priya Nighantu</td>
<td>Dravya varga (Sthambhan)</td>
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<tr>
<td>Raaj Vallabha Nighantu.</td>
<td>Vrkhadi varga</td>
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</tbody>
</table>
**Properties And Action** (19)

**Rasa :** Kashya  
**Guna :** Laghu, Snigdha, Picchila  
**Virya :** Sita  
**Vipika :** Katu  
**Karma :** Sothahara, Dhaprasamana, Pittahara, Vatahara, Kaphavardhaka, Shtambhan

**Salmalica Malabarica (Mocharasa)** (17, 20)

<table>
<thead>
<tr>
<th>Literature</th>
<th>Rasa</th>
<th>Guna</th>
<th>Veeya</th>
<th>Vipaka</th>
<th>Karma</th>
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</thead>
<tbody>
<tr>
<td>Bhavprakash Nighantu</td>
<td>Kashya</td>
<td>Snigdha</td>
<td>Sheet</td>
<td>Madhur</td>
<td>Grahi</td>
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<tr>
<td><strong>Chemical Constituents:</strong></td>
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<tr>
<td>Hydrolisis of gum yields</td>
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</table>
| arabinose, galactose, galacturonic acid, rhamnose and partial hydrolysis yields 6-0-(β-D-galactopyranosyl-uronic acid)- D-galacto Pyranose; 2,3,4,6-tetra-,2,6-di and 2,4-di-o-methyl-L-arabinose. Methylated S. malabaricum gum on hydrolysis has been found to yield 2,3,4,6-tetra-,2,6-di-and 2,4-di-o-methyl-D-galactose and 2,3,5-tri- and 2,5-di-o-methyl-L-arabinose.
| Resin contains 2-9% mineral matters, gallic and tannic acids, yields L-Arbinose, D-Galactose, D-Galaturonic Acid, D-Galatopyranose. (21) The alcoholic and water extracts have alkaloids, flavonoids, glycosides and tannins. (23) All parts of Salmali malabarica have active constituents like Betasitosterol and its Glucosides. Flowers-hentriacontane, hentriacontanol. Seeds, bark and root bark- lupeol, root bark in addition gave 7-hydroxycadalene. Younger root contain more sugars and peptic substances. They contain mucilage, starch, mineral matter, tannins and non tannin (24, 29) |
| **Folklore uses:**            |      |      |       |        |       |
| There is traditional use of oral intake of Mocharasa to treat worms and diarrhea in Nawalparasi district of central Nepal recorded by Anti-diarrheal Field observations on the use of medicinal plants in traditional health care systems. (25) Various parts of Salmali like juices of leaves, root, flowers, seeds, bark or thorns are used as traditional healing remedies as mentioned below. (26) Seed powder of B. ceiba and Hing (Ferula foetida) are used. B. ceiba is used in many formulations for production of Agnihotra, a religious offering.
| **Aphrodisiac agent:**        |      |      |       |        |       |
| Fresh stem bark of B. ceiba, to cure gonorrhoea, impotency, spermatorrhea, sterility, nocturnal emission and leucorrhoea. It is also prescribed for increasing sperm in semen and to act as aphrodisiac.  |
| **Impotency, asthma and small-pox boil:** Powder of stem prickles was used to treat asthma and taken with a glass of cow’s milk/fresh water. Seed paste prepared in water was applied on small-pox boils.  |
| **Leprosy:**                  |      |      |       |        |       |
| Seeds and roots were used in the treatment of leprosy.  |
| **Anti-inflammatory agent in Muscular Injury:** barks and roots were used to treat muscular injury  |
| **Wound healer:**             |      |      |       |        |       |
| bark is used externally for cattle wound in Mysore and Coorg of Karnataka.  |
| **Anti-diarrheal agent:**     |      |      |       |        |       |
| Decotion of the leaves of B. ceiba and the bark of Mangifera indica was taken orally to treat diarrhea.  |
| **Antihelminthic drug:**      |      |      |       |        |       |
| Flowers were fed to the animal as antihelminthic agent.  |

**Pimples and skin disease:** Concentrated bark decoction for applications in the treatment of skin diseases and in folk cosmetics. Fresh bark of B. ceiba was crushed and applied topically on pimples, carbuncles and boils.

**Leucorrhoea:** Bark powder was boiled with water and given orally to treat leucorrhoea. birth control, sexual diseases and tonic, impotency, asthma and small-pox boils.

**Therapeutic Uses: In Ayurvedic Literature** (27)

1. **Intrinsic haemorrhage**  
Mocharasa is used in combination with Chandan (santalum album) in various forms. In haemorrhage from rectum, milk with boiled Mocharasa is efficacious. In epistaxis, Mocharasa with other drugs to snuff.

2. **Bleeding Piles**  
Mocharasa with Samanga, Lodhra, tila, Chandan and Niloptpala with goat’s milk followed by diet of Sali rice with milk is advised.  

3. **In Diarrhoea**  
Along with Lodhra, Samanga, Kamala and Utapala mixed with honey and taken with rice water.

4. **Prameha:** Along with Priyangavadi gana drugs is advised.

5. **Sinus:** It is one ingredient in Kumbhikady Taila.

6. **Garbhshrava:**  
Garbhshrava, Gabbhashool, Pradar roga: Mocharasa as content in Hriberadi kwatha in Garbhani roga adhikar in Bhaihajaya Ratana wali indicated (28) In Pushyanaga churna Mocharasa as a content used. Also in various formulations for Pichhu it can be used. (28)

7. **Pichha Basti:** In Charak chikitsa sthana versus -14/228, as content of Pichha basti used in Pravahika, Gudabhransha, Raktashrava, Jwara nashak, Raka arsa. As a content of “Pichha basti” given by rectal route proves its mild nature and astringent with styptic action. Pichha basti also indicated for Parikartika treatment in Vamanvirechana vyapada of Sidhi sthana.

**In Unani Medicine,** due to hot and dry temperament of gummy exudates of Salmali known as Mochrasa is employed in disorders occurring due to cold and moist
temperament. It is used in phlegmatic cough due to respiratory disorders. Tooth powder containing Mochrasa is beneficial for loosening teeth and bleeding gums. Mochrasa powder along with sugar is given to cure diarrhoea in children. It also cures dysentery and other gastro intestinal track disorders with loose motion. It has an astringent action on uterus if kept in vagina as a pessary, thus used in leucorrhoea. To reduce or stop pueraeral discharge and menstraghae. Mochrasa is used with rasot orally. Nocturnal enuresis of children can be treated by this drug. Mochrasa alone or mixed with other drugs is used to treat spermatorrhoea and urinary incontinence. It cures the stomatitis if applied locally. It improves the skin complexion when used as face wash. Bark purifies the blood and diminishes the burning sensation. For this purpose its decoction is taken internally and paste is applied as plaster.

Material and Methods

In order to collect original sample of raw Mochrasa small study performed to observe the process and collect authentic sample from relevant sources. Data is collected on basis of observation and available literature from various journals and web resources.

Collection Of Original sample of Mochrasa

Mochrasa is dried form of exudate which oozes out from the opening on lower part of stem and branches of Salmali malabarica (Silk Cotton Tree).

Procedure

Liquid exudates or Resin of Salmali malabarica oozes out after 2-3months period of time by making deep vertical or slightly tilt incisions made to form artificial opening on bark of Salamali tree during summer season and which later on get dried up to obtained reddish brown colored nodular solid mass of Mochrasa. Dried sample collected from the bark after 2-3 months by removing it from stem bark. (Fig. No.1, 4.A, 4.B)

Site for Observation and Collection: (Fig. No.2)

Location: Bank of the River Ganga in Hardwar region.

Tress are mostly located at the Bank of River Ganga of Hardwar region (mosty trees are planted by Forest Department of Hardwar) but found throughout India up to the altitude of 1300 A.S.L and associated with foot hills and valleys. It is Deciduous tree with buttress at base of trunk and leaves are digitate with 5-7 leaflets and becomes leafless during winter month, flowers (fleshy cup- shaped reddish in color) appear during January-March.

Time of incision: Blunt incision penetrating to inner bark (cortex) with help of axe was done in the Month of April - May (Fig No.2.A).

Time of collection: Two month apart from incision time Required Time period for collection: 3 to 4 Months

Precaution: Continuity of transportation of Nutrition via vascular bundles should not be hampered in order to prevent damage to trees.

Quantity of resin

Tiny droplets to solid mass of 5-6 gms depends on availability of water for Photosynthesis, Age of tree, Sunlight exposed area and Climatic condition of the area.

Nature of resin

Reddish brown, jelly like liquid (secondary metabolite) seereted from broken inner bark (secondary xylem-phloem) which get solidify due to oxidation process into blackish brown in color. Impurities may be present like bark of tree, insects infestation, soil particles etc. (Fig.No.3)

Market Survey

Raw drug bought from the market of Hardwar at rate of Rs.350/- per Kg and was sold openly. These samples are genuine, similar to original drugs but there is slight variation in color and it have some adulterants which are physically recognizable. (Fig.No.4)

In Phytochemical Industries - (Extracts) (Fig No.6)

Mochrasa with assurity of 10-20% other contents, light brownish in color available at rate of Rs.2500/- per kg Extract of drug containing active principles are available for the drug preparation in industrial use but they lack counter balancing active principles of the whole drug and may produce side effects which is reason behind its drawback from market. Limitation : Spoiled if exposed to air by absorbing water so should be used instantly.

Identification Features: (Fig.3)

Physical Appearance: Nodular mass of agglutinated, round or irregularly shaped tears up to 4cm across.

Color: Outer surface of tear is opaque, brick red to reddish brown in color resembling shellac.

Nature: Resin swell to large size on soaking in water and get soften and sticky in nature but no completely dissolve in water.

Odor: Faint or no smell

Taste: Astringent and Mucilaginous.

Purification Method: Solid resin before using for drug preparation dissolved into water and filter it out through filter paper. (Fig.No.5)

Production, Availability and Trade: (Fig.21): Commercial supply was coming from Bihar and West Bengal. The drug market handling bulk supply from region of Kolkatta, Patna, Mumbai and Delhi.

Adulterant -substitute (31,32)

Moringa oleifera, Butea monosperma and Pistacia lentiscus.

B. malabaricum gum can be substituted for gum tragacanth.

Evidences from Ayurvedic Literature

Some Formulations: Main Formulations containing Mochrasa are Sunisnaok Changeri Ghrita, Bilwaadari churna, Kutajastak avthleha, Sambangi Ghrita, Changeri Ghrita, Salmali ghir, Kamadenura, Suudaralpa, Chandanaasava, Abhayarista etc. in different Ayurvedic treatise which are widely used.
Antioxidant activity

The antioxidant activity of a methanolic extract of *B. ceiba* leaves was evaluated using several antioxidant assays, in terms of its: (i) ability to scavenge DPPH (1,1-diphenyl-2-picrylhydrazyl) and hydroxyl free radicals; (ii) action against lipid peroxidation (in rat liver microsomes and soy bean phosphatidylcholine liposomes), induced by ascorbyl radicals and peroxyxinitrite; and (iii) effect on myeloperoxidase activity. Caffeine and gallic acid were quantified by high performance liquid chromatography (HPLC). Total free radical scavenging activity of each ingredient was investigated by 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical scavenging method and the values were compared with phenolic and gallic acid present in each plant.

Antimicrobial and antibacterial activity

Plant extracts (methanol and aqueous) were assayed for their activity against multi-drug resistant *Salmonella typhi*. Strong antibacterial activity was shown by the methanol extracts of *Salmalia malabarica*. Plant or plant parts were collected, dried, homogenized and extracted in two organic solvents viz. methanol and acetone. The antibacterial activity against Klebsiella pneumoniae was done by agar disc diffusion method. The activity was compared with standard antimicrobials Amikacin and Piperacillin.

Antipyretic

The methanol extract of *Bombax malabaricum* leaves was investigated for the antipyretic activity in rats. MEBM possessed significant antipyretic activity in Baker’s yeast-induced pyrexia. Phytochemical tests showed the presence of steroids, carbohydrates, tannins, triterpenoids, deoxy-sugars, flavonoids and coumarin glycosides.

Aphrodisiac

The aphrodisiac activity of *B. ceiba* root extract was investigated. The extract was administered orally by gavage for 28 days. Mount latency (ML), intromission latency (IL), ejaculation latency (EL), mounting frequency (MF), intromission frequency (IF), ejaculation frequency (EF) and post-ejaculatory interval (PEI) were the
parameters observed before and during the sexual behavior study at day 0, 7, 14, 21, and 28 days. The extract reduced significantly ML, IL, EL and PEI (p < 0.05). The extract also increased significantly MF, IF and EF (p < 0.05). These effects were observed in sexually active and inactive male mice.

RESULT

Mochrasa is therapeutically important drug used in various important formulations like Sunisnaak Changeri Ghrita, Bilwaadi churna, Kutajastak avhleha, Sammangaadi Churna, Changeri Ghrita, Salmali ghrit used in bleeding disorders to treat bleeding haemorrhoid, menorrhagia due to antihemolytic activity by phenolic compounds like flavonoids which neutralize the free radicals causing haemolysis. Other bioactive components like flavanoids, phenols and tannin protect the erythrocytes membrane from destruction and lysis. Therefore it is used widely to treat dysentery, menorrhagia, skin disorders, haemorrhoids, boils, leucorrhoea, internal bleeding, chronic inflammation, ulceration of bladder and kidney, gonorrhrea, haemoptysis, influenza, and catarrhal affections bleeding piles. The pharmacological activities are reported in the present review confirm the therapeutic value of Mochrasa and data from Ayurvedic literature supports well the medicinal use of Mochrasa. Various formulations containing Mochrasa are Sunisnaak Changeri Ghrita, Bilwaadi churna, Kutajastak avhleha, Sammangaadi Churna, Changeri Ghrita, Salmali ghrit, Kamadenarasa, Suadarialpa, Chandanaasaava, Abhayarista etc. are widely used.

CONCLUSION

By analyzing the folklore uses in traditional health care system and literature of Ayurveda and Unani, it can be said that – Mochrasa is a secondary metabolite in the form of resin - a sticky liquid which exudates from natural openings or artificial opening made by insects on more sun exposed area on the lower part of stem of Salmali malabarica or Bombax ceiba specially in summer season. Mochrasa is a drug having therapeutic value in bleeding disorders (menorrhagia- bleeding uterine disorder, haemoptysis etc.) in treatment of gastrointestinal disorders (acute dysentery, malena etc) and in urogenital disorders due to their astringent, haemostytic, demulcent, cooling and binding properties. Mochrasa was used as a good Aphrodisiac agent in traditional practices. “Pichha Basti” via rectal route used as styptic agent and internal use in pregnant ladies and children due to significant haemostatic action (astringent and binding nature) in various bleeding disorder with other haemostatic drugs proves its mild nature. The effective antihemolytic activity is due to ability of phenolic compounds like flavonoids to neutralize the free radicals causing haemolysis. New researches on pharmacological activities revalidate the potency of drug in diseases which are used since ancient times and supports evidences of therapeutic use in Ayurveda. The presence of other interesting chemical compounds indicates that the plant could serve as “lead” for development of novel agents in disorders in the coming years. In this regard, further experiments are need to be carried out to develop new scientific collection methods, purification and to explore Mochrasa for its potential in preventing and treating disease.

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Fig No. 1 - Original Sample of Mocharasa

Fig No. 2.A - Blunt Incision on Bark

Fig No. 3 - Fresh Collected Sample of Mocharasa

Fig No. 4.a - Dried Original Sample of Mocharasa
Sarita Verma et al. Case Report on Mocharasa (Haemostyptic Drug)- Action And Uses

FIG NO. 4.b Dried Sample of Mocharasa

Fig No.5 Purification of Mocharasa – Mucilaginous Liquid
Fig No.- 6 – Mocharasa in Extract form

Fig No. -4 Mocharasa in Market Sample