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A Review of Mocharas *(Bombax malabaricum)*: In The Light of Unani Medicine

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Abstract:- One of the traditional systems of medicine that is Unani System of Medicine utilises Mawalid Salasa (Plants, Animals, and Minerals) for the management of various diseases. Among them plants are widely used for the treatment of diseases. Mocharas is an important drug of Unani medicine and a member of family Bombaceae which is usually known as Silk Cotton Tree. It is a well known medicinal plant of tropical and subtropical India. It has wide range of therapeutic applications. In Unani System of Medicine it is used as diuretic, anti-dysenteric, emetic, anti-diarrhoeal, and aphrodisiac. It is used to treat wounds, acne, skin blemish, pigmentation, cold and cough. It has many pharmacological activities like In-vitro Anti-inflammatory, Anti-diabetic, Anti-obesity, Hypotensive, Antioxidant, Antiangiogenic, Antimicrobial, Cytotoxicity, Aphrodisiac and Antipyretic. This paper provides an overview on pharmacological, phytochemical properties and therapeutic benefits of the tree.

Keywords:- *Mocharas, Bombax malabaricum, Unani formulations, Temperament*

I. INTRODUCTION

Mocharas is the gum of the tree *Bombax malabaricum* (Synonym: *Bombax ceiba* Linn; *Salmalia malabarica* DC Schott & Endl.) also called Kapok family of flowering trees and shrubs. It belongs to the family Bombaceae. The family consists of about 22 tropical genera and more than 150 species. The largest genera comprise 60 species of Bombax, 15 species of Ceiba, 15 species of Durio, 10 species of Salmalia and 10 species of Adansonia (Meena *et al.*, 2011). In the world tropical regions, there are about 55 species of Bombacaceae that yields floss similar to Java kapok. Its tree is known as *Kanta-kudruma*, means a tree with hard conical prickles. The gum is also known as *Supari ka phul* (*Areca catechu*) in allusion to the fact that children masticate the blunt thorns of *Bombax malabaricum*, the flower buds are known as *Semargulla*. Seeds are covered with fine cottony hairs and these hairs are used for stuffing pillows and are called *Sembhal ki rooae*. Bast fibres of tree used for making ropes and its wood is used for making scabbards. In Mahabharata it is narrated that Pitamaha after having created the world, reposed under the tree Salmali, and in the code of Yajnavalkya it is mentioned as one of the trees of the infernal regions (Yamadruma), because it makes a great show of flowers, but produces no fruit fit to eat (Dymock *et al*. 1890).

In Unani literature it is described as a huge Indian tree; its wood is white and light in weight. Trunk is big with numerous branches; each branch has five hands like leaves, which resemble with the leaves of Jamun (*Syzygium cumini*). Fruits resemble with the fruit of Bakain (*Melia azedarach*) and are mucilaginous, dark red in colour. Flowers shed off. Root is white, soft and mucilaginous in nature and is called *Musli Sembhal*. Sembhal tree is of two types. One has prickles and called *Kanti Sembhal*, Second type has no prickles. First variety has better pharmacological actions (Azam Khan, 2014). Its bark is bluish, fresh bark having conical projections (Lubhaya, 1977). Infected bark of the tree yields a gum called *Mocharas*.

In Tibb-e-Unani it is used as Astringent ***(Qabid)***, styptic *(Habis)*, aphrodisiac *(Muqawwi-i-Bah)*, adipogenous *(Musammin-i-Badan)* (Nadkarni, 1954; Khory and Katrak, 1985; Azam khan, 2014). It is indicated in diarrhoea, dysentery and menorrhagia (Dey, 1973). Tooth powder of Mocharas is useful in loose teeth to strengthen them (Fazalullah, 1918; Nabi, 1958; Hakeem, 1922; Ghani, 2010). If the cotton of Mocharas accidently gets inside the ear, it may cause deafness (Azam Khan, 2014).

II. VERNACULARS

Samagh-ul-Mocharas, Semul, Simuli nuagarh, Heembal, Deokapas, Huttian, Rakto-semul, Kanta-Kudruma, Picha, Shalmali, Tool phalli, Silk Cotton Tree, Gond Supari, and Samagh Seembhal) are some of its vernacular names (Dymock *et al.*, 1890; Nadkarni, 1954; Khory and Katrak, 1985; Anonymous, 2000; Anonymous, 2004; Anonymous, 2007; Usmani, 2008; Anonymous, 2008; Azam Khan, 2014)

III. GEOGRAPHICAL DISTRIBUTION

The trees of Bombax malabaricum are distributed among Tropical Eastern Himalaya and throughout the hottest forest regions of India to Burma and Ceylon (Hooker, 1982; Nadkarni, 1954; Khory and Katrak, 1985). A tall tree buttressed at the base, widely distributed throughout India, including the Andamans, up to 1500 m. is found in the tropical evergreen, semi-evergreen and moist deciduous forests along the western coast from North Kannada southwards, extending into Anamalai hills in Tamil Nadu. It also occurs in Assam and Tripura and in the Andamans where taller trees are found (Anonymous, 2004). It occurs throughout the year and distributed in

different parts of India and also occurring at Chimtipur of Chhindwara district of Madhya Pradesh (Bhattacharjee, 2004). Flowering takes place during January to March and fruiting during March to May (Anonymous, 2007).

IV. BOTANICAL DESCRIPTION *(MAHIYAT)*

Bombax malabaricum is a large deciduous tree, notable for its height and covered with hard conical prickles. Flowers are large, bright red in colour with green cup shaped calyx followed by egg shaped green capsules; seeds numerous, of a black colour, and covered by long silky hairs, or a quantity of fine cotton. The root is of carrot size; bark is externally dark brown and reddish from inside, fibrous, hard and studded with a soft spongy substance. It has astringent gummy or mucilaginous taste (Khory and Katrak, 1985). Capsule are 6 to 7 in number, ovoid, downy, 5-valved, valves silky within. Seeds are obovate, smooth (Hooker, 1982). The juice of Mocharas is not normal but the product of diseased action, which consists in the proliferation of the cells of the bark, only exudes from the bark which injured by decay or by insects. Incisions in the healthy bark produce nothing. On incisions into the diseased bark, a number of small cavities are seen, which contain a jelly like substance, some granular matter and starch. Thus in appearance Mocharas resembles galls more than a gum; when first exuded it is in whitish fungoud pieces, which gradually turn red, and finally mahogany like. In some pieces holes made by insects are distinctly seen, the galls thus resembling Kakda-singa. It is very brittle, the fractured surface being resinous looking and red. It has astringent taste and resembles Chikni Supari (Khory and Katrak, 1985).

- *Macroscopic*:

The gum of *Bombax malabaricum* is amorphous, opaque, solid, brick-red to black in colour. The pieces are irregular and of different sizes varying from 2.5 to 5.0 cm long. The surface is quite smooth and shiny and sometimes a small portion of bark is attached. The odour is slightly pungent and taste is acrid, Fracture is hard, difficult to break but brittle (Anonymous, 1997).

- *Microscopic*:

The powder of the crude drug shows the presence of abundant brick-red granules of different sizes. During the investigation different tissues are reported; among these fragments of tissues, cork cells are found in abundance. In surface view the cork cells are hexagonal to polygonal or oval with slightly thickened wall containing reddish brown contents and they are of 54.00 – 94.50 × 18.00 – 54.00 microns in size. These cells show the presence of tannins with ferric chloride solution. The fibres are also studied but lesser in number and they are large and usually found fragmented. They occur singly or occasionally in groups of two or three. Individual fibres are fusiform with bluntly pointed ends; the walls are straight, thickened and lignified with somewhat uneven lumen and few inconspicuous pits and of 288.00 – 738.00 × 10.00 – 18.00 microns in size. The starch grains are numerous, oval to round, simple, 4.00 – 9.00 micron in length and are found singly or in groups (Anonymous, 1997).

V. CULTIVATION

- *Natural regeneration:*

The tree starts fruiting at the age of 8 years and the fruit ripens during March-May and open while still on the tree and the seeds are widely dispersed by wind. Under favourable conditions, natural regeneration takes place freely on new alluvial flats, savannahs, and other open spaces. Attempts are being made in Uttar Pradesh to regenerate the tree from sucker. In Orissa, fair amount of natural regeneration takes place as a result of coppicing.

- *Artificial regeneration:*

The tree can be raised by direct sowing, entire transplanting and stump planting; all the three methods have been successfully practiced in various regions. Propagation can also be done through branch-cuttings, but the survival rate is poor. The tree prefers deep sandy-loam, derived from granite, attaining maximum development in the deep alluvial soil of the valleys. The tree also grows on well drained hill slopes, provided the soil is moderately deep. In its natural habitat, excluding the hills, the absolute maximum shade temperature varies from 34º to 49º, the absolute minimum from 3.5º to 17.5º, and the rainfall from 75 to 460 cm or more, thriving best in places where the rainfall is well distributed throughout the year. The tree is strongly light demander, a character which prevents its forming pure, dense crops. It is fairly drought resistant, but it is affected by severe frost (Anonymous, 1999).

VI. COLLECTION

Gum is exuded from natural wounds probably caused by decay or insects but is not exuded from artificially made wounds (Anonymous, 1997). Mocharas or Supari ka phul is collected by Bheels and other wild tribes. It is sold by all the druggists (Dymock *et al.*, 1890).

- *Preservation and Storage (Tahaffuz Wa Zakheera andozi)*

The gum is air dried under shade and should be stored in dry and cold place (Anonymous, 1997).

- *Parts Used (Hisas-e- Mustamlah)*

Almost all parts of the tree like gum, roots, stem bark, flowers, seeds and leaves etc possess medicinal properties but in Unani System of Medicine only gum and roots are used medicinally.

- *Temperament (Mizaj)*

With the consensus of various Unani authors the temperament of ***Gum*** is Cold 2˚ and Dry 3˚ along with slight variation in grade of temperament (Fazalullah, 1918; Hakeem, 1922; Nabi, 1958; Daljeet, 1974; Lubhaya, 1977; Ghani; 2010)

: Cold and Dry (Azam Khan, 2014)

Flower: Cold and Wet (Azam Khan, 2014)
Root: Hot and Wet 1º (Lubhaya, 1977; Azam Khan, 2014)
Cotton: Slightly Hot (Azam Khan, 2014) ***Wood***

➢ *Pharmacological Actions (Af'al)*

Gum**:** Astringent ***(****Qabid****)***, demulcent *(Mulattif)*, styptic *(Habis)*, aphrodisiac *(Muqawwi-i-Bah)*, spermatogenic *(Muwallid-i-Mani)*, tonic *(Muqawwi)*, repellent *(Radi)*, avaricious and semen Viscositive *(Mumsik wa Mughalliz-i-Mani)*, desiccant *(Mujaffif)*, glutinous *(Mugharri)* (Fazalullah, 1918; Hakeem, 1922; Nadkarni, 1954; Nabi, 1958; Dey, 1973; Lubhaya, 1977; Khory and Katrak, 1985; Dayal, 1993; Anonymous, 1999; Anonymous, 2004; Kabeeruddin, 2007; Usmani, 2008; Afaq *et al.*, 2011)

Root**:** Demulcent *(Mulattif)*, tonic *(Muqawwi)*, diuretic *(Mudirr-i- Bawl)*, aphrodisiac *(Muqawwi-i-Bah)*, emetic *(Muqi)*, astringent ***(****Qabid****)***, spermatogenic *(Muwallid-i-Mani)*, adipogenous *(Musammin-i-Badan)* (Nadkarni, 1954; Dey, 1973; Lubhaya, 1977; Khory and Katrak, 1985; Azam Khan, 2014).

Stem Bark**:** Demulcent *(Mulattif)*, tonic *(Muqawwi)*, diuretic *(Mudirr-i- Bawl)*, astringent ***(****Qabid****)***,emetic *(Muqi)*(Nadkarni, 1954; Afaq *et al.*, 2011)

Flowers**:** Aphrodisiac *(Muqawwi-i-Bah)*, astringent ***(****Qabid****)***, adipogenous *(Musammin-i-Badan)* (Azam Khan, 2014)

➢ *Medicinal Uses (Mahall-e-Istema'al)*

- Decoction of the gum is used as mouthwash in mouth ulcers caused by the ingestion of mercury (Ghani, 2010; Nabi, 1958; Hakeem, 1922).
- Mocharas is used in the form of pessaries and suppository in menorrhagia (Hakeem, 1922; Nabi, 1958).
- The powder prepared from Mocharas, Bael fruit (*Aegle marmelos*) and kernel of mango seed 3.5 gm each and opium 5 grains in the amount of 20-40 grains is used in the treatment of diarrhea and descentry.
- Fine powder is used effectively as a surgical dressing, after cleaning of wounds.
- Petals are squeezed and soaked in human or cow's milk then applied for conjunctivitis of infants for soothing effect.
- Pastes of leaves are applied on skin eruptions.
- Dry young fruits are beneficial in calculous affections, chronic inflammation, dysuria and ulceration of the bladder and kidneys including strangury.
- Fruits are also useful in weakness of genital organs.
- Root is also used for gonorrhoea and dysentery.
- Seeds are used in the management of catarrhal affections, gonorrhoea, gleet and chronic cystitis (Nadkarni, 1954).
- The gum (2gm) mixed with cow's milk (30ml) and water (30ml) is reported to cure bleeding piles (Anonymous, 2000).
- Native women use it largely after delivery to stop menses during lactation.
- It is a chief ingredient in various restorative, expectorant and aphrodisiac confections (Khory and Katrak, 1985).
- The drug is useful in snake bite also (Nadkarni, 1954; Afaq *et al.*, 2011)
- Mocharas is used in various other diseases also like epistaxis *(Ru'af)*, hypo viscous Semen *(Riqqat-e-Mani*), menorrhagia *(Kathrat-i-Tamth)*, leucorrhoea *(Sayalan al-Rahim)*, spermatorrhoea *(Jarayan)*, premature ejaculation *(Sur'a al-Inzal)*, haemoptysis *(Nafth al-Dam)*, incontinence of urine *(Salas al-Bawl)*, excessive nocturnal emission *(Kathra al-Ihtilam)*, polyuria *(Kathra al-Bawl)*, dysentry *(Zahir)*
- (Fazalullah, 1918; Hakeem, 1922; Nabi, 1958; Dey, 1973; Lubhaya, 1977; Khory and Katrak, 1985; Bhattacharjee, 2004; Anonymous, 2004; Kabeeruddin, 2007; Usmani, 2008; Afaq *et al.*, 2011; Azam Khan, 2014)

➢ *Ethnomedicinal Uses*

Seeds and roots of Mocharas were used in the treatment of serious skin diseases like leprosy. Fresh rubbed bark of Mocharas was applied topically on pimples, acne and boils. The tender twigs were used as a toothbrush to cure mumps. Powdered flowers along with honey were used for menorrhagia. Root bark extracts were used as a tonic in case of sexual debility and also as a nervine rejuvenator. Root powder mixed with sucrose and milk was taken to avoid impotency. Plant seed powder was used with other drugs containing raisin for abortifacient activity in eastern states (Antil V. *et al.*, 2013).

➢ *Commercial Values of Bombax malabaricum*

The wood is used in the manufacture of matches. The cotton from the fruits of this plant is used commercially for stuffing pillows and mattresses (Bhattacharjee, 2000). The floss is also used as an insulating material for refrigerators, sound-proof covers and walls. Young roots, tender leaves, flower buds, fleshy calyces and gum are eaten. Flower buds in Uttar Pradesh are consumed as a vegetable. Roots are roasted over the fire and eaten as in the case of sweet potato. Leaves and younger twigs are lopped as fodder (Anonymous, 1999).

➢ *Adverse effects (Muzir Atharat)*

It causes dryness in the body (Fazalullah, 1918; Nabi, 1958; Usmani, 2008; Ghani, 2010), slows down digestion (Lubhaya, 1977; Usmani, 2008) and produces morbid humours in the body (Kabeeruddin, 2007).

➢ *Correctives (Musleh)*

The Musleh or correctives of Mocharas are Garam Masale (Hot Spices) (Daljeet, 1974; Lubhaya, 1977), Shakar (Sugar) (Fazalullah, 1918; Hakeem, 1922; Nabi, 1958; Anonymous, 1997), Roghan-e-Badam (Oil of *Prunus amygdalus*) (Fazalullah, 1918; Hakeem, 1922; Nabi, 1958; Anonymous, 1997; Usmani, 2008), Darchini (Stem bark of *Cinnamomum zeylanicum*) (Daljeet, 1974).

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➢ *Substitutes (Abdaal)*

The various substitutes (Abdal) of Mocharas (*Bombax malabaricum*) mentions in various Unani literatures are Samagh-e-Dhaak (Gum of *Butea frondosa*) (Fazalullah, 1918; Hakeem, 1922; Nabi, 1958; Usmani, 2008), Mastagi (Gum of *Pistacea lentiscus*) (Hakeem, 1922; Usmani, 2008), Post darakht-e-Anar (Stem bark of *Punica granatum*) (Anonymous, 1997) Found to be a valuable substitute for gum Kino (*Eucalyptus resinifera)* and red gum (*Eucalyptus camaldulensis*) (Khory and Katrak, 1985).

➢ *Adulterants*

Moringa oleifera and *Eriodendron anfractuosum* are used as adulterants. They may readily be distinguished by their weight and solidity (Dymock *et al.*, 1890).

➢ *Dosage (Miqdar-e-Khurak)*

The various dosages of gum mentions in Unani literatures are 2 gm (Anonymous, 2000), 3 -5 gm (Anonymous, 1997; Usmani, 2008; Daljeet, 1974; Lubhaya, 1977; Kabeeruddin, 2007), 5 – 10 gm (Anonymous, 2008) and Decoction of root: I to 2 ozs (Khory and Katrak, 1985).

➢ *Unani Formulations (Unani Murakkabat)*

The important Unani formulations of Mocharas in which the drug is used either as chief ingredient or one of the ingredients of the formulation are Majoon Mocharas, Safoof Gond Kateere Wala, Safoof Sailaan, Majoon Zanjabeel, Habbe Muqawwi (Daljeet, 1974; Kabeeruddin, 2007; Usmani, 2008), Majoon Sohag sonth, Majoon Bandkushad, Safoof Ziabetus Qawi, Majoon Muqawwi Rahim (Anonymous, 2006; Anonymous, 2007).

➢ *Phytochemical Constituents*
➢ ***Major:*** Lupeol, Shamimicin (Anonymous, 2008)

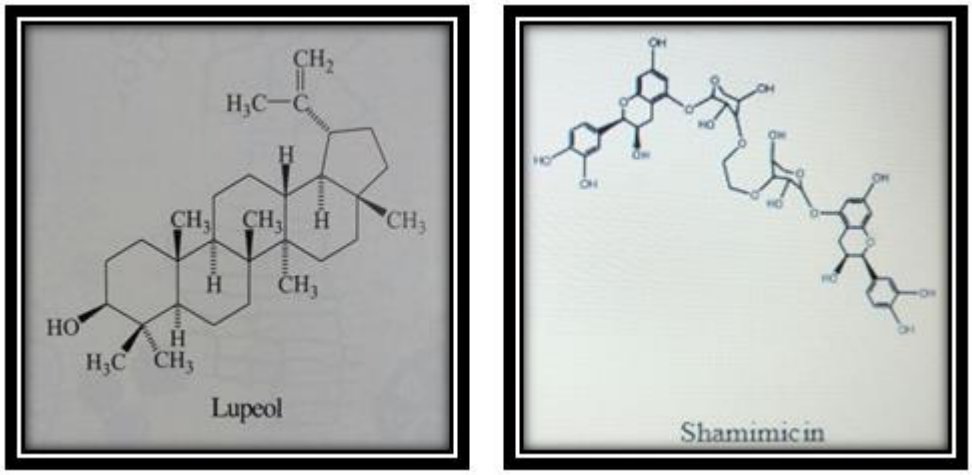

Fig 1

Others: β-Sitosterol (Anonymous, 2008) ***Gum:*** L-arabinose, D-galactose and D-galacturonic acid and traces of rhamnose. 6-O-β-D-galactopyranosyluronic acid-D-galactose. 2,4,6-tri-2,6-di-O-methyl-D-galactose and 2,3,4-tri-O-methyl-D-galacturonic acid in equivalent amounts. The degraded gum was shown to be a branched chain polysaccharide and the repeating unit consisted of a framework of D-galactopyranose residues with main chain linked by 1→3 and side chains attached by 1→4 linkages. Riboflavin and thiamine were also reported from the gum, Catechutannic acid. (Rastogi and Mehrotra, 1990; Anonymous, 2000; Anonymous, 2004)

Flowers: β-sitosterol and β-D-glucoside of β-sitosterol, Hentriacontane, Kaempferol, Quercetin, Traces of an Essential oil, two anthocyanidin glycosides named A and B namely pelargonidin-5β-D-glucopyranoside and cyaniding-7-methyl-ether-3β-glucopyranoside, respectively, Ca, P and Mg (Anonymous, 2004), 24β-ethylcholest-5-en-3β-O-α-L-arabinopyranosyl(1→6)-β-D-glucopyranoside (III), 3,5-dihydroxy-4'-methoxyflavone-7-O-α-L-rhamnopyranosyl-(1→6)-β-D-glucopyranoside (IV) and 4',5,7- trihydroxyflavone-3-O-β-D-glucopyranosyl(1→4)-α-L-rhamnopyranoside (V) (Rastogi and Mehrotra, 1991). ***Seeds:*** Seeds yield 25 p.c. of a sweet non drying oil, of a light yellowish brown colour which contains crystalline, insoluble fatty acids 92.8 p.c. (Khory and Katrak, 1985). n-hexacosanol, palmitic acid, octadecyl palmitate, gallic acid, tannic acid, 1-gallayl-β-glucose, ethyl gallate and a mixture of α-, β-, ɣ- tocopherols, crude protein and pentosan, oleic acid, myristic, palmitic, arachidic and linoleic acids. Stearic, tetradecenoic and hexadecenoic acids were not present (Anonymous, 2004).

Stem: Lupeol, β-sitosterol, Flavonoids, glycosides, sterols, Terpenoids. Stem bark contains crystals of calcium oxalate and Potassium nitrate (Rastogi and Mehrotra, 1991; Anonymous, 2000; Anonymous, 2004).

Root: proteins, fatty matter, tannins, sugars, starch, monogalactan, steroids, terpenoids, alkaloids, flavones, phenolics, saponins, n-triacontanol, β-sitosterol, 5,7,3',4'-tetrahydroxy-6-methoxyflavan-3-O-β-D-glucopyranosyl-α-D-xylopyranoside. lupeol, β-sitosterol, O-

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hydroxyaldehyde, isohemigossypol-1,2-dimethyl ether, 8-formyl-7-hydroxy-5-isopropyl-2-methoxy-3-methyl-1,4-napthaquinone, 7-hydroxycadalene, 1,6-dihydroxy-3-methyl-5-(1-methylethyl)-7-methoxynapthalene-8-carboxylic acid (8→1), Higher content of calcium (93mg/100gm) makes it a calcium rich food for calcium deficient rural population (Rastogi and Mehrotra, 1993; Anonymous, 2000; Anonymous, 2004).

VII. PHARMACOLOGICAL STUDIES

Mostly experimental studies were carried out on the seeds, roots, flowers, stem bark, leaves and fruit of the tree Mocharas only few experimental studies have done to rule out gum's pharmacological properties.

***B.malabaricum* (Part studied)**	**Tested Animals/Dose (rats/mice)**	**Methods/Test/ Model**	**Activity**	**Authors**
Leaf & Stem branch	-	-	Enzyme activity	Gupta and Gupta, 1997
Seed Extract	-	-	Haemolytic activity	Chowdhuri and Chatterjee, 1973
Methanol and acetone extracts of plant parts	-	Agar disc diffusion method	Antimicrobial activity	Vaghasia and Chanda, 2009
Different extracts	-	Human Red Blood Corpuscles (HRBC) membrane stabilizing method	In-vitro Anti-inflammatory activity	Rameshwar *et al.*, 2014
Stem bark extract	Wistar rats	HFD induced experimental obesity	Anti-obesity activity	Rameshwar *et al.*, 2014
Methanol extract of stem bark	Sprague Dawley rats	-	Hypotensive and hypoglycaemic activity	Saleem *et al.*, 2003 Phulan and Khullar, 2004
Methanol extract of stem bark	-	Mitochondrial activity in Vero cell line	Antioxidant activity	Rameshwar *et al.*, 2014
Crude plants extracts	mice	Acetic acid induced writhing and hot plate test	Analgesic activity	Dar *et al.*, 2005
Ethanolic extract of the flowers	-	respiratory syncytial virus (RSV) by the CPE reduction assay and plaque reduction assay	Antiviral activity	Zhang *et al.*, 2005
Methanol extract of the stem barks	-	in vitro tube formation of human umbilical venous endothelial cells (HUVEC)	Antiangiogenic activity	You *et al.*, 2003
Aqueous extracts of the plants	-	brine shrimp lethality test	Cytotoxicity	Krishnaraju *et al.*, 2005
Methanolic extract of flowers	-	Against isoniazid and rifampicin	Hepatoprotective activity	Ravi *et al.*, 2010
Methanol extract	Rats	Baker's yeast-induced pyrexia	Antipyretic Activity	Hossain *et al.*, 2011
Root extract	male mice		Aphrodisiac	Rameshwar *et al.*, 2014
Methanol extract of bark	normal and immunosuppressed mice models		Immunomodulatory / Antioxidant Activity	Wahab *et al.*, 2014
Root powder	-		Anabolic Effect	Verma *et al.*, 2011
Aqueous extract of flower	Rats	Adriamycin-induced myocardial infarction	Cardioprotective Effect	Patel *et al.*, 2011
B.malabaricum extract	Rats	streptozotocin-induced diabetes	Anti-diabetic activity	Rameshwar *et al.*, 2014

Table 1

➢ *Toxicity*

The pollens of the plant were reported to play some role in causing pollen allergy (seasonal pollen fever, seasonal asthma and rhinitis) in Pondicherry area. The pollens were reported to cause asthma or seasonal rhinitis in human beings in Kolkata and neighbouring area (Anonymous, 2000).

➢ *Safety Aspects*

One of the most active hypotensive fractions of methanolic extract of defatted stem bark of *B.ceiba* showed adverse effects on heart, liver and kidneys of mice at the dose of 1000mg/kg/d (Anonymous, 2008).

VIII. CONCLUSIONS

The literature survey of the Unani drug Mocharas (*Bombax malabaricum*) showed its therapeutic application in Unani system of medicine as well as in different tribal communities for treating various diseases. Its use by various ancient Unani physicians and tribal peoples is not just a myth but this practice was tested on scientific parameters also. Reproducibility of the pharmacological effects were well confirmed by its repeated use in human beings and cattle. A large number of studies showed its efficacy as anti-diarrheal, siccative, blood purifier, anti-asthmatic, avaricious, tonic, amenorrhoea, abortifacient, anti-leucorrhoic etc. Scientific validation regarding antioxidant, analgesic, anti-inflammatory, antipyretic, anti-carcinogenic, cytotoxic and antibacterial activities on modern scientific parameter further authenticated the wisdom of ancient Unani scholars and tribal peoples.

However with the advancement of time it becomes imperative to explore the drug on latest scientific parameters. Identification and isolation of more active constituents from different parts of plant is also essential in order it can be better utilized or exhibit wide range of therapeutic applications.

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