



Taxonomy and Traditional Medicine Practices on Malvaceae (Mallow Family) of Rajshahi, Bangladesh

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Abstract - Taxonomy and traditional medicine practices on the family Malvaceae growing throughout the Rajshahi, Bangladesh was carried out during July 2008 to June 2009. A total of 9 species under 6 genera belonging to the family Malvaceae were collected and identified. Out of the total number of species *Abutilon indicum* (L.) Sweet., *Hibiscus esculentus* L., *Hibiscus mutabilis* L., *Hibiscus rosa-sinensis* L., *Sida acuta* Brum. f., *Sida cordata* (Burm. f.) Bors., *Thespesia populnea* (L.) Sol. ex Corr. were common and *Gossypium herbaceum* L., *Urena lobata* L. was rare species in the study area. For each species botanical name, local name, habit, habitat, phenology, status of occurrence, voucher number and medicinal uses have been mentioned.

Keywords - Malvaceae, Taxonomy, Traditional Medicinal Practices, Rajshahi, Bangladesh

1. Introduction

A family of about 85 genera and 1000 to 1500 species, Malvaceae are distributed widely in tropical and temperate regions. 22 genera and about 125 species of Malvaceae have so far been reported from India. Some of the larger genera, along with their common names/ or number of reported species in parenthesis, include *Hibiscus* (rose mallow, 300), *Sida* (200), *Pavonia* (200), *Abutilon* (Indian mallow, 100), *Alcea* (60), *Malva* (Mallow, 40), *Lavatera* (25), *Gossypium* (Cotton, 20), and *Althaea* (12). A number of species are pests in agriculture, including *Abutilon theophrasti* and *Madiola caroliniana*, and others that are garden escapes. Cotton (four species of *Gossypium*), kenaf (*Hibiscus cannabinus*), cacao, kola nut, and okra (*Abelmoschus esculentus*) are important agricultural crops. The fruit and leaves of baobabs are edible, as is the fruit of the durian. The family is recognized by *Hibiscus rosa-sinensis* (rose of China) because of its beautiful large flowers and hundreds of its known cultivated varieties. Cotton (*Gossypium*), the most important plant of this family from the commercial viewpoint, has been cultivated in India since last 5000 years (Sharma, 2004).

The main objectives of this work will be detailed study on the taxonomic and traditional medicine practices of the family Malvaceae occurring Rajshahi, Bangladesh.

2. Materials and Methods

The present study is based on the intensive field of the area during the period of July September 2008 to June 2009. A

total of 9 species under 6 genera belonging to the family Malvaceae were collected and identified. The methods employed during the study were designed with the sole purpose of eliciting the precious wealth of information on the medicinal uses of plants practiced by the local people. Detailed survey has made in gathering information regarding use of medicine has been documented. Usually, the survey in each locality started with the interview of elderly and experienced members, locally known as Hakims. Besides, this the common people of the surveyed localities who themselves have used these plant-based for health treatments were interviewed to prove veracity of the curative features of plants. Medicinal uses and data about the treatment of various ailments based on the information gathered by using questionnaires are given subsequently.

The collected specimens were identified studying related taxonomic books and booklets from the library of Rajshahi University. The major collected materials were identified and described up to species with the help of Ahmed et al. (2007); Cronquist (1981); Hooker (1961); Kirtikar and Basu (1987); Prain (1963); Rahman (2013a, 2013b, 2013c, 2013d); Rahman et al (2013a, 2013b) and Rahman et al (2014) were consulted. For the current name and up to date nomenclature Huq (1986), Ahmed et al. (2007) and Pasha and Uddin (2013) were also consulted. All the collected plant specimens were kept in the Herbarium, Department of Botany, and University of Rajshahi, Bangladesh.

3. Results and Discussion

The present research work is based on the local knowledge of

most commonly used medicinal plants of Malvaceae family. Each Medicinal plant species is provided with its scientific name, local name, plant parts (Such as leaf, root, stem, fruit, latex, whole plant, seed, inflorescence and bark) mostly used and uses.

The result obtained in the investigation need to be rigorously subjected to pharmacological analysis in order to validate their authenticity and future prospects. The paper has only documented the herbal health remedies presently in vogue in the region and does not prescribe or recommend for their use till further determination by the pharmacologist. Data have been gathered on the traditional uses of plant species, especially for asthma, abscess, anthelmintic, astringent, bronchitis, bedsores, cancer, cough, diuretic, diarrhea, dysentery, eczema, earache, headache, inflammations, jaundice, kidney disease, leprosy, paralysis, skin diseases, scabies, toothache, ulcers, ringworm and others.

By examining the plant materials collected from the study area using the identification methods and medicinal information was accumulated and described below.

3.1. *Abutilon indicum* (L.) Sweet.

Taxonomic description: An erect woody under shrub. Leaves ovate, cordate irregularly toothed, covered on both surfaces with white down. Flowers solitary, axillary; calyx 5-lobed, tubular below, lobes ovate-acute; corolla yellow, petals 5, connate below and adnate to the tube of the stamens. Ripe carpels 15-20, longer than the calyx, truncate or shortly awned.



Local name: Petari.

Habit: Undershrub.

Habitat: In waste places.

Phenology: July to August.

Status of occurrence: Common.

Medicinal Uses: Infusion of the leaves and roots is diuretic and demulcent; used in fevers, chest infections, gonorrhoea and urethritis; leaves cooked and eaten in bleeding piles. Stem bark is astringent, diuretic, febrifuge, anthelmintic;

lessens perspiration; good in strangury and urinary complaints. Seeds are tonic, aphrodisiac, laxative, emollient and demulcent; good for bronchitis, cough, piles, gonorrhoea, gleet and chronic cystitis. Root is nervine tonic; infusion is useful in fever, leprosy, strangury, piles, leucoderma, haematuria and stones in bladder.

Voucher number: Binodpur, 14. 05. 2009, Rojoni Gondha 95 (RUH).

3.2. *Gossypium herbaceum* L.

Taxonomic description: A small, woody, annual shrub. Leaves almost reniform, distinctly cordate-auriculate, 3-5-7 lobed. Inflorescence proliferous, forming many lateral spurs that carry two or more flowers. Bracteoles 3, equalling the capsule, ovate-rotund, top incised into long irregular teeth. Flowers large, yellow with purple claws. Capsules ovoid, acuminate.



Local name: Karpus.

Habit: Shrub.

Habitat: Cultivated.

Phenology: January to December.

Medicinal Uses: Flower extract is used as an abortifacient and to induce menstrual flow. Seeds are demulcent, laxative, expectorant and aphrodisiac. Roots are emmenagogue and galactagogue; useful in dysmenorrhoea and suppression of menstruation. Root bark stimulates uterine contractions and hastens difficult labour. It promotes abortion or onset of menstruation and reduces menstrual flow.

Voucher number: Katakhal, 14. 08. 2008, Rojoni Gondha 88 (RUH).

3.3. *Hibiscus esculentus* L.

Taxonomic description: The leaves are alternate, ovate to lanceolate, often with a toothed or lobed margin. The flowers are large, conspicuous, trumpet-shaped, with five or more petals, color from white to pink, red, orange, purple or yellow, and from 4-18 cm broad. Flower color in certain species, such

as *H. mutabilis* and *H. tiliaceus*, changes with age. The fruit is a dry five-lobed capsule, containing several seeds in each lobe, which are released when the capsule dehisces (splits open) at maturity. It is of red and white colours. It is an example of complete flowers.



Local name: Dharosh.

Habit: Herb.

Habitat: Cultivated gardens.

Phenology: April to July.

Status of occurrence: Abundant.

Medicinal Uses: The roots are very rich in mucilage, having a strongly demulcent action. They are said by some to be better than marsh mallow (*Althaea officinalis*). This mucilage can be used as a plasma replacement. An infusion of the roots is used in the treatment of syphilis. The juice of the roots is used externally in Nepal to treat cuts, wounds and boils. The leaves furnish an emollient poultice. A decoction of the immature capsules is demulcent, diuretic and emollient. It is used in the treatment of catarrhal infections, ardor urinae, dysuria and gonorrhoea. The seeds are antispasmodic, cordial and stimulant. An infusion of the roasted seeds has sudorific properties.

Voucher number: Rajshahi University Campus, 24. 09. 2008, Rojoni Gondha 80 (RUH).

3.4. *Hibiscus mutabilis* L.

Taxonomic description: A large, bushy, ornamental shrub. Leaves, cordate, long-petioled, suborbicular, 5-7 lobed or angled, softly pubescent or tomentose. Flowers large, axillary, solitary; corolla 7.5-10 cm across, spreading, white or pink. Capsules globose, flattened, hairy.



Local name: Sthalpadma.

Habit: Shrub.

Habitat: Gardens.

Phenology: July to December.

Status of occurrence: Common.

Medicinal Uses: The flowers are considered to be stimulant, and an established remedy for pectoral and pulmonary complaints. The plant is used as an emollient.

Voucher number: Rajshahi University Campus, 14. 12. 2008, Rojoni Gondha 60 (RUH).

3.5. *Hibiscus rosa-sinensis* L.

Taxonomic description: An ornamental shrub or small tree. Leaves ovate-lanceolate, more or less acuminate, irregularly and coarsely serrate towards the top. Flowers large, axillary solitary; corolla 7.5 cm diam., tubular below, red.



Local name: Jaba.

Habit: Shrub.

Habitat: Gardens.

Phenology: January to December.

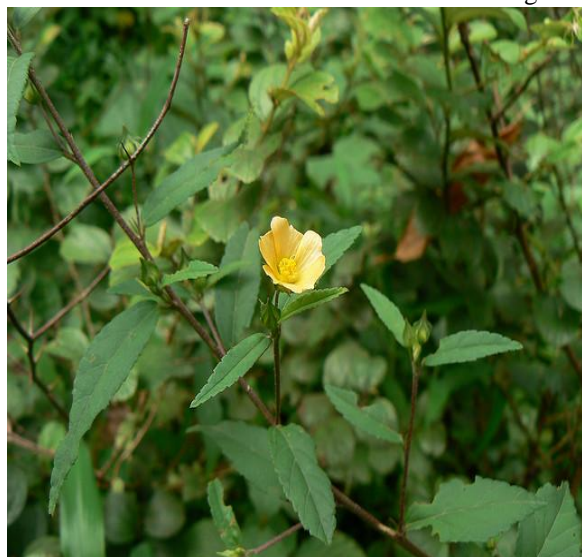
Status of occurrence: Very common.

Medicinal Uses: The flower buds are cooling and astringent; remove burning of the body, urinary discharges, seminal weakness and piles. Flowers are refrigerant, emollient, demulcent, aphrodisiac and emmenagogue. Juice of the flower with juice of banana inflorescence cures acute dysentery. Flower with leaves of *Adhatoda zeylanica* is very much beneficial in bleeding piles. Flowers fried in ghee is given in menorrhagia; also used in diseases of the genito-urinary tract. Fresh flowers are macerated and mixed with water is taken to cure scanty menstruation. Staminal column is diuretic and is used in the treatment of kidney trouble. Leaves are emollient, anodyne and aperient. Roots are valuable in cough.

Voucher number: Rajshahi University Campus, 22. 02. 2009, Rojoni Gondha 69 (RUH).

3.6. *Sida acuta* Brum. f.

Taxonomic description: These are annual or perennial herbs or shrub growing 20 centimeters to 2 meters tall. Most species have hairy herbage. The leaf blades are usually unlobed with serrated edges, but may be divided into lobes. They are borne on petioles and have stipules. Flowers are solitary or arranged in inflorescences of various forms. Each has 5 hairy sepals and 5 petals in shades of yellow, orange, or white. There are many stamens and a style divided into several branches. The fruit is a disc-shaped schizocarp up to 2 centimeters wide which is divided into 5 to 12 sections each containing a seed.



Local name: *Kureta*, Barela.

Habit: Herb.

Habitat: Common in waste land, hedges and thickets.

Phenology: January to December.

Status of occurrence: Common.

Medicinal Uses: The powdered root bark is administered with milk and sugar as treatment for urinary urgency and leucorrhoea. Seeds are also used to treat urinary infections. They have been reported to be aphrodisiac also. The plant is reported to be well tolerated in routine doses. Fresh extract of leaves of *Sida* is used in dropsy and chronic renal failure in a

dose of 20ml, two to three times a day. Roots boiled in milk are used in a single daily dose for maintaining health. Paste of roots is used topically for treating inflammation.

Voucher number: Guripara, 12. 05. 2009, Rojoni Gondha 35 (RUH).

3.7. *Sida cordata* (Burm. f.) Borss.

Taxonomic description: *S. cordifolia* is an erect perennial that reaches 50 to 200 cm (20 to 79 in) tall, with the entire plant covered with soft white felt-like hair that is responsible for one of its common names, "flannel weed". The stems are yellow-green, hairy, long, and slender. The yellow-green leaves are oblong-ovate, covered with hairs, and 3.5 to 7.5 cm (1.4 to 3.0 in) long by 2.5 to 6 cm (0.98 to 2.36 in) wide. The flowers are dark yellow, sometimes with a darker orange center, with a hairy 5-lobed calyx and 5-lobed corolla.



Local name: *Junka*.

Habit: Herb.

Habitat: Roadsides and open fields.

Phenology: January to December.

Status of occurrence: Abundant.

Medicinal Uses: It is used in neurological ailments, especially in Stroke rehabilitation. Known as "malva branca", it is a plant used in Brazilian folk medicine for the treatment of inflammation of the oral mucosa, blenorrhoea, asthmatic bronchitis and nasal congestion, stomatitis, of asthma and nasal congestion and in many parts of Africa for various ailments, particularly for respiratory problems. It has been investigated as an anti-inflammatory, for preventing cell proliferation, and for encouraging liver re-growth. Due to its ephedrine content, it possesses psychostimulant properties, affecting the central nervous system and also the heart. The plant has demonstrated anti-pyretic and anti-ulcerogenic properties.

Voucher number: Motihar, 21. 01. 2009, Rojoni Gondha 12 (RUH).

3.8. *Thespesia populnea* (L.) Sol. ex Corr.

Taxonomic description: A medium-sized evergreen tree. Leaves cordate, acuminate, 15-20 cm, entire, dark green, petiole 3-10 cm long. Flowers yellow with purple base, axillary, solitary or in 2 together on slender 2-7 cm long pedicels; corolla 5-7.5 cm diam.,. Fruit a capsule, 2.5 cm diam., depressedly globose, 5-valved.



Local name: Parashpipul

Habit: Tree.

Habitat: Gardens.

Phenology: January to December.

Status of occurrence: Common.

Medicinal Uses: The bark, leaves, flowers and fruit are useful in cutaneous affections such as scabies, psoriasis, ringworm and eczema. Yellow juice of the peduncles and fruits is useful in sprains, bruises and all cutaneous diseases. Decoction of the bark is given internally in chronic dysentery. Oil prepared by boiling the ground bark in coconut oil is applied in psoriasis and scabies. The ground leaves and contents of the capsule applied externally in eczema and ring worms. A compound oil of the bark and capsule is beneficial in cases of urethritis and gonorrhoea. Bark, roots and fruits are also used in dysentery, cholera and haemorrhoids. The seeds possess purgative properties.

Voucher number: Motihar, 11. 04. 2009, Rojoni Gondha 32 (RUH).

3.9. *Urena lobata* L.

Taxonomic description: A shrubby perennial, up to 2 m high. Leaves usually broader than long, up to 11.3 cm long, cordate, serrate or toothed, stellately hairy, roundish, angled; lobes generally acute or acuminate, varying in size and numbers. Flowers small, clustered in the axils; corolla 15 mm long, pink. Capsules pubescent, covered with blunt spines.



Local name: Banokra.

Habit: Shrub.

Habitat: Waste places, open fields and road sides.

Phenology: January to December.

Status of occurrence: Common.

Medicinal Uses: Roots are a popular diuretic; used externally for lumbago and rheumatism. Decoction of stem and root is used in windy colic. The flowers are used as a pectoral and expectorant in dry coughs. Infusion of flowers is used as a gargle for aphthae and sore-throat. Leaves are used in abscess.

Voucher number: Katakhal, 13. 01. 2009, Rojoni Gondha 21 (RUH).

4. Conclusion

Taxonomy and traditional medicine practices on the family Malvaceae growing throughout the Rajshahi, Bangladesh was carried out during July 2008 to June 2009. A total of 9 species under 6 genera belonging to the family Malvaceae were collected and identified. The present study may be a preliminary contribution of this area using standard research methods, focusing on medicinal plants and their local uses for the healthcare. This detailed information will be helpful for the pharmacognosist, botanist, ethno-botanist and pharmacologist for the collection and identification of the plant for their research work.

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