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ETHNOMEDICINAL, PHYTOCONSTITUENTS AND PHYTOPHARMACOLOGY OF *BOMBAX CEIBA* L. A REVIEW

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ABSTRACT: Medicinal plant is the basic and most significant part of the traditional medicinal system. The different plant contains medicinal properties, also known as an herbal plant. *Bombax ceiba* L. plant of the Bombacaceae family shows much Pharmacological activity. It is also called as Kate Savar and Semal. It is a native plant in western Africa. It is naturally obtained in Pakistan, India, and Myanmar. *Bombax ceiba* L. is a big and tall tree with a height of approximately 30m and having a diameter of 58 to 78 cm. It grows in a straight direction with having a cylindrical stem and wide base. *Bombax ceiba* L. contains principal constituents that are tannin and glycosides which are present in part of the leaf and stem. The part of the stem shows the presence of some lupeol and b-sitosterol, and the leaf shows the presence of alkaloid. The root bark contains the 3 naphthalene derivatives. *Bombax ceiba* L. shows many pharmacological properties. The stem bark of the plant is used for a wound. Thorn of a plant used in different formulation to treat acne problem. Androecium is used for food purposes. The leaf shows Antidiarrheal property. Root used for the treatment of Piles. Bark contains lupeol, saponins, tannins, gums and 4, 5, 7- trihydroxyflavone-3-O-β-D-glucopyranosyl (1-4)-α-L-rhamnopyranoside, n-hexacosanol. Root bark contains lactone and ether. The seed contains palmitic acid and flower contains polysaccharide. Leaves contain Shamimin. This review paper provides an overview on Pharmacological, Phytomedicinal properties of the plant.

INTRODUCTION: Medicinal plant is the most basic and significant part of our medication system. Most of the medicine is made up of herbal plant. It is also named as medicinal plant. Herbal plant was used in our traditional medicine system for long ago. Countries in Asia and Africa, 80% user used traditional medicinal system, which includes herbal or medicinal plant. There are many uses and less or negligible side effect of traditional (medicinal plant) over any other system, for their healthy lifestyle. Many plants having medicinal properties. *Bombax ceibal* L. is one of them. *Bombax ceibal* L. is also known as *Salmalia malabarium*.

Generally, it is called as *Bombax ceiba*. It is having no. of common names. In Hindi, it is called as Semar, Semul, Semal and in English, it is called as Red silk cotton tree, *Bombax ceiba*, and in Marathi it is commonly called as Kate savar, Semul. *Bombax ceiba* L. belongs to the family Bombacaceae Indian silk cotton Karole *et al.*⁹; it is naturally obtained in Pakistan, India, and Myanmar. But it is native or belongs to western Africa (Sint *et al.*)¹³.

Bombax ceiba L is a big and tall tree with a height of approximately 30 m and having a diameter of 58 to 78 cm. It grows in a straight direction with having a cylindrical stem and wide base. A tree contains a very beautiful and large flower which is pollinated mainly by birds because the flower contains nectar which is used by birds. Also, the plant contains a green leaf which is having an entire margin with an alternate spiral arrangement of leaves. *Bombax ceiba* L. flowering period is in

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January to February and fruiting period is generally from March to May. Pollination is generally done by birds and bats. Germination through seed mainly (Sint *et al.*)¹³. *Bombax ceiba* L. contain principal constituent are tannin and glycosides which is present in part of leaf and stem. The part of stem shows the presence of some lupeol and b-sitosterol and the leaf shows the presence of alkaloid.



FIG. 1: *BOMBAX CEIBA* L. TREE

The root bark contains three naphthalene derivatives related to gossypol; it is called semi gossypol. The flower contains b-sitosterol and some traces of essential oil and some natural dyes (Faizi *et al.*; Meena *et al.*)⁵ (Refaat *et al.*)¹¹. There are different medicinal uses of the plant *Bombax ceiba*. The part of the plant used for medicinal uses is given in the following chart (Depani *et al.*)².



FIG. 2: *BOMBAX CEIBA* L. BARK

TABLE 1: ETHNOMEDICINAL ACTIVITY OF *BOMBAX CEIBA* L.

S. no.	Plant Part	Traditional Medicinal uses
1	Thorn	Used in the different formulation to treat Acne Jain and Verma)
2	Androecium	Used for Food purpose
3	Petals	For Skin and Cosmetics
4	Leaf	For treatment of Diarrhoea, Larvicidal Activity.
5	Root	For treatment of Piles
6	Bark	Used for Wound

Fruit: Good for leprosy used as a cooling agent, digestible, shows the diuretic property, antioxidant, tonic, aphrodisiac, expectorant, shows good action in the genital, urinary organ. It is also used for bladder, kidney, chronic inflammation, and blood purifier (Divya *et al.*)⁴.

Flower: The flowers show bitter action and also shows acrid cooling, dry, astringent to the bowels, anti-inflammatory action. It removes bile and phlegm of the body and purifies the blood; it is beneficial to the spleen and shows a good response in leucorrhoea. It is also used topically to skin affections as cooling and astringent (Depani *et al.*)². It having phenolic compound (Zhang *et al.*)¹⁶ (Joshi *et al.*)⁸.

Seed: Seeds show good action in chickenpox, smallpox, catarrhal affections, chronic cystitis, and genitourinary diseases (Chauhan *et al.*)¹.

Bark: Stem bark is used in the healing of the wound and as a paste in water to skin eruptions, boils, acne, pimples. The stem bark is also used as a demulcent, styptic, and used to removes phlegmatic. Aqueous extract with curd shows great action in treatment given for dysentery with blood.

Leaves: It is used in the treatment of diarrhea used in treatment for inflammation, larvicidal activity (Hossain *et al.*)⁶.

Root: Root bark is used for the treatment of piles. The root shows diuretic and astringent property. It is useful in biliousness, inflammations, and excessive heat of the body.

Gum: The gum is an acrid, astringent, demulcent, tonic, aphrodisiac, and removes black bile. In powder form alone or with other herbs, it is used internally to treat hemoptysis, diarrhea, dysentery, bleeding piles and menorrhagia, leucorrhoea, and spermatorrhoea, and blood disorders. Topically it is applied as a styptic, astringent, demulcent in stomatitis, dermatological ailment, and burn wound (Meena *et al.*)¹⁰.

Phytopharmacological Activity:

Anti-microbial Property: *Bombax ceiba* L shows anti-microbial activity. A different plant (root, bark, leaf, thorn) used for the medicinal purpose

Bombax ceiba L. Contain antimicrobial activity. It's all part shows activity against microbial diseases like diarrhea and dysentery in stomach problems the *Bombax ceiba* L. used in other cases like common cold and fever. Generally, the leaf part of the plant is used for the treatment of diarrhea and dysentery, and the root part used for the treatment of piles (Jain and Verma) ⁷.

Analgesic Activity: *Bombax ceiba* L. shows the analgesic activity. It's different parts used for the analgesic action. The root of the plant shows analgesic activity, and therefore, it is used in the case of abdominal pain and waist pain. Another part used is its stem bark, which is useful in case of colic pain. The Thorn of the plant is used in the case of headache, and the flower of the plant is used in stomach pain. Fruits are used in different formulation as a pain killer in different cases in this way the almost all parts of the plant used as an analgesic.

Oxytocic Effect: *Bombax ceiba* L. shows oxytocic activity. They mainly stem bark is used for this purpose. The stem bark is used in the case to facilitate delivery in cattle. Seed part of the plant is used as an abortifacient. *Bombax ceiba* L. Shows different properties like anti- analgesic, cytotoxic, and anti-hyperlipidaemic properties. It also shows the effect of various human and animal models studies.

Hepatic Disorder: *Bombax ceiba* L. are used in various treatment in hepatic disorder. Various part of plant like root, stem, bark, the seed used in the treatment of hepatic abnormalities or disorder.

Heart-Related Disorder: *Bombax ceiba* L. are used in the various heart problem. The stem bark is used in heart disorder as a heart tonic. And not only the stem bark but also the root and flower part are used in the heart-related problems. The flower part of *Bombax ceiba* L. is used in the case of the treatment of colitis and it is also used as tonic. The root of the plant *Bombax ceiba* L. is used as a brain tonic also. It also shows antioxidant properties.

Acne: *Bombax ceiba* L is used in many cosmetics and skin preparation. It is used in many skin products for different problems related to the skin like acne and pimples and other skin infection. The main part of the plant used for the treatment of acne

is the thorns of the plant. It is used in different acne-related skin preparation.

It is the main ingredient in the anti-acne (cream) formulation of "Himalayas (Jain and Verma) ⁷.

Urolithiasis: The *Bombax ceiba* L. plant part used in the case of urolithiasis. Its young fruit part of the plant is effective against chronic inflammation and also in the case of ulceration of the bladder and in kidneys. It shows activity in calculus affection also.

Diabetes Mellitus: *Bombax ceiba* L. Shows activity against diabetes mellites. It is used in many cases of diabetes mellites. It almost all part is useful in the treatment of diabetes mellites. Various part of the plant like root, stem, leaf, the bark is showing the property to effective against patient with polyurea and glycosuria, and also it is used in case of asthenia. The root part of the plant shows activity in a patient with hypoglycaemic cases. Its other part (flower) is used in case of minimizing blood sugar levels.

Sexual Problem: The part of the plant of *Bombax ceiba* L. (Young root) is used in the case of sexual problems. Semalmusli or Semar-kanda is the name of the young root. It shows activity against many sexual problems. In the traditional medicinal system, it is used in the treatment of aphrodisiac, spermatorrhoea and impotence. The juice of the plant is used as a nutritive in the case of sexual stimulation. The other part of plant, like its root powder, is used in the case of oligospermia to increase the sperm count and its motility. *Bombax ceiba* L. is used in other problems related to impotence and erectile dysfunction.

Wound: The stem bark part of plant *Bombax ceiba* L. is used for the treatment of wound. Its paste forms help in the healing of the wound.

Other uses of the Plant *Bombax ceiba* L.

1. Mangiferin isolated from the plant *Bombax malabaricum* shows antifungal properties (Shahat *et al.*) ¹².
2. Stem bark of plant *Bombax ceiba* L. contains some natural dyes (Vadwala and Kola).
3. Antibacterial activity of aqueous bark extract of *Bombax ceiba* L. against some gram

positive and gram negative bacteria (Digge *et al.*)³.

4. Phenolic compound from the flower of *Bombax malabaricum* shows antioxidant and antiviral properties (Zhang *et al.*)¹⁶.
5. *Bombax ceiba* L leaf extract shows larvicidal activity against the filarial vector *Culex quinquefasciatus* (Hossain *et al.*)⁶.
6. The seed of *Bombax ceiba* L shows good nutritional property (Chauhan *et al.*)¹.

TABLE 2: PHYTOCONSTITUENTS ISOLATE FROM PLANT *BOMBAX CEIBA* L (*U. AGUORU*)

1	Bark	Lupeol, Saponins, Tannins, Gums and 4,5,7-trihydroxyflavone-3-O- β -D-glucopyranosyl (1-4)- α -L-rhamnopyranoside, Nhexacosanol
2	Leaves	Shamimin
3	Flower	Polysaccharide
4	Root bark	Lactone, ether
5	Seed	Palmitic acid

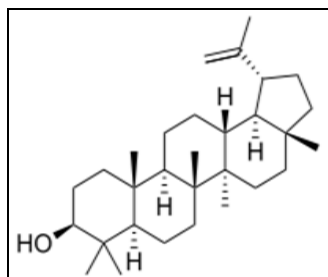


FIG. 3: LUPEOL

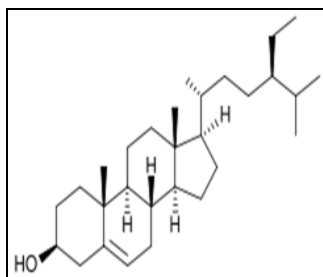


FIG. 4: B-SITOSTEROL



FIG. 5: SEED AND POWDER FORM OF PLANT PART

CONCLUSION: The above literature survey revealed that *Bombax ceiba* L contains so much medicinal properties. It is used in many herbal

formulations and traditional medicinal systems. It contains many phytoconstituent, which shows great medicinal properties. *Bombax ceiba* L shows antioxidant, larvicidal, diuretic, tonic, anti-leprosy, expectorant properties. It is also used in treatment in blood purifier, inflammation of the bladder, kidney calculi affection; it shows antimicrobial, analgesic, oxytocic, urolithiasis property. It is also used in sexual disorder and acne problem. Its part also shows medicinal properties like thorn used in acne problems. Root used in piles. Stem bark is used in the wound and leaf part used in the treatment of diarrhea.

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CONFLICTS OF INTEREST: Nil

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