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### RESEARCH ARTICLE

#### BOMBAX CEIBA: KALPATARU, A TREE OF LIFE.

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Bombaxceiba, Silk cotton tree, Anti-oxidant, Oxytotic activity, Anti-bacterial property.

#### Abstract

Natural plant products have been used throughout human history for various purposes. This plant was used for multiple daily requirements, for instance, as food, fodder, fuel, fibre, medicines etc. It possess Anti-oxidant, Oxytotic activity, anti-inflammatory, anti-diabetic, hepatoprotective property etc.

This plant still remains under-utilized because of slow propagation and unawareness of its medicinal uses. The objective of this article is to focus on various pharmacological uses of Bombaxceiba as home remedies.

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#### Introduction:-

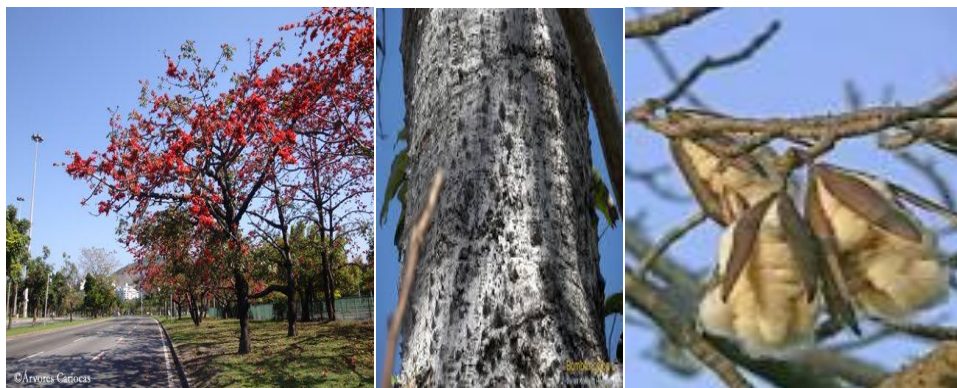
Bombaxceiba plant is like a Kalpataru as its each and every part can be used for its medicinal and commercial importance. It is 'The best creation of god' for human beings and valuable gift of nature because its multipurpose eco-friendly uses.<sup>[1]</sup> Many custom, traditions, rituals, folk tales and rites are related to this tree. Bombaxceiba L. commonly known as silk cotton tree, Semal and it is popular in many tribal communities. This tree possess medicinal and commercial properties but it is exploited by using in Holika-dahan.<sup>[2]</sup> In India Bombaxceiba has different names in different language as Semal, Shalmali, Indian Kapok tree, Shimul, Mullilavu,<sup>[3]</sup> Moca, Picchila, Raktapushp, Katakdhya, Tulini, Semul, Shemalo.<sup>[6]</sup>

It's a widely distributed throughout Australia and Asia including India and Pakistan. It also found in Java, Sumatra, Malaysia, Bangladesh and Myanmar.<sup>[15]</sup> In India it is found in Southern Rajasthan because its drought tolerance ability.<sup>[1]</sup> It belongs to family Bombacaceae, genus ceiba is a tall, straight, rigid, deciduous tree. Its trunk is straight and tall and bears spikes for its protection from animals. Its leaves are palmate, large, spreading, glabrous, digitate having common petiole and 15 to 30 cm long.<sup>[3]</sup> In spring Pentamerous large red flowers come into sight (January to March) which are ornithophilous with cup shaped, thick and fleshy sepals. The flowers have a well-protected ovary with hard perianth containing stiff filaments. On ripening flowers produce a capsule enclosing white fibers embedded with smooth, black or gray seeds. The large, showy flowers usually appear when the trees are leafless.<sup>[4]</sup> In India various tribal people used this plant for fuel, food, fodder, fibre and medicine hence, it holds the socio-economic and ethno-medicinal values. Gum is light brown in colour and gradually becomes dark brown.<sup>[5]</sup>

The plant also known as 'King of Forest' because of its giant appearance and big flowers and has spiritual importance too. It is one of member of the five sacred trees of 'Panchvati'. Its each and every part like root, bark, gum, leaves, heartwood, flower, stem, fruit have specific medicinal importance.<sup>[1]</sup> Its medicinal benefits are found in Ayurveda, Unani and Siddha medicines.<sup>[15]</sup>

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**Taxonomical Classification:-**

Rank	Scientific Name	common Name
Kingdom-	Plantae	Plants
Subkingdom-	Tracheobionta	Vascular plants
Superdivision-	Spermatophyta	Seed plants
Division-	Magnoliophyta	Flowering plants
Class-	Magnoliopsida	Dicotyledons
Subclass-	Dilleniidae	
Order-	Malvales	
Family-	Bombacaceae	Kapok-tree family
Genus -	BombaxL.	cottontree
Species-	BombaxceibaL.	Red silk cotton tree <sup>[7]</sup>
Binomial name: BombaxceibaL.; BombaxmalabaricumD.C.; Salmaliamalabarica <sup>[6]</sup>		

**Floral characters of *Bombaxceiba* :** <sup>[20]</sup>**Floral character Observation:**

Flowering period	January– March
Flower type	Somewhat ornithophilous
Flower color	Crimson
Odor	Absent
Nectar	Present
Flower opening time	Post-midnight to morning
Anther dehiscence time	After anthesis
Anther dehiscence mode	Longitudinal
Number of anthers	Many (100 approx.)
Average number of pollens per anther	88,630
Average number of pollens per flower	88,63,000
Pollen type	3-colporate
Pollen shape	Euoblate
Pollen size	± 38.8 ' 71.75 µm
Atmospheric pollen frequency	5.17% in 10.00 h
Stigma type	Above anther level, digitate with stout style and wet type.

**Medicinal Importance:-**

1. Roots of Bombaxceiba show antioxidant property.<sup>[8],[9],[22]</sup> and used in excess bleeding in menstruation<sup>[7]</sup>.
2. B. ceibashows cardiac stimulant properties<sup>[21]</sup>, hypotensive and hypoglycaemic activity, analgesic activity, traditional anti-inflammatory agent.
3. Dried tender fruits of B. ceiba are given in calculus affections and chronic inflammation and ulceration of the bladder and kidneys including strangury and other forms of dysuria<sup>[10]</sup>
4. Bark of Bombaxceiba shows anti-diabetic activity.<sup>[11]</sup> Fresh rubbed bark of B. ceiba was applied topically on pimples, acne, boils<sup>[18]</sup> wounds and to improve breast milk.<sup>[7]</sup> An infusion of the bark of B. ceiba is used as a tonic<sup>[19]</sup>
5. Tannins present in aqueous extract of Bombaxceiba bark is used against pathogenic bacterial strains<sup>[5]</sup> due to its anti-bacterial activity<sup>[12]</sup>
6. Flowers of Bombaxceiba shows hepatoprotective activity due to the presence of flavonoids and sesquiterpenoids.<sup>[13]</sup> and it also shows cardioprotective activity<sup>[14]</sup> and seminal flower green base part used in weakness<sup>[7]</sup>
7. Seeds<sup>[16]</sup>, leaves, stem, flower<sup>[1]</sup> possess oxytocic activity.
8. Seeds and roots of B. ceiba were used in the treatment of serious skin diseases like Leprosy.<sup>[17]</sup>
9. Flower and fruit of Bombaxceiba are used in snakebite and leucorrhoea.<sup>[2]</sup>
10. Phytochemicals present in plant help in providing protection against cataract, ageing, dementia, cancer.<sup>[16]</sup>
11. Leaves of Bombaxceiba used for blood purification<sup>[7]</sup>.

**Commercial Importance:-<sup>[2]</sup>**

1. It is commercially used for various purposes like toys and coffins making, artifact production, in match industry.
2. In Rajasthan (India) Kathodi tribes use its wood to make musical instruments like Dholak and Tambura while Bhil tribe uses to prepare spoons.
3. Seed oil of Bombaxceiba used as an illuminant and also for soap making.
4. Cotton extracted from its fruit is used as insulator for refrigerator, soundproof covers and in formation of padded surgical dressings.
5. Floss is generally used for making pillows and cushions because it is vermin-proof.

**Conclusion:-**

Bombaxceiba is overlooked because of some myths but it is a very valuable tree; each and every part of it is useful and valuable for various purposes. This article may develop awareness in people regarding importance and valuable uses of this tree and people can think to plant this tree in their garden in small cities and in kitchen garden in metropolitans. Various parts of this plant can be used as home remedies

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