



MEDICINAL IMPORTANCE AND BIOACTIVE CONSTITUENTS OF *BAUHINIA TOMENTOSA* L.: AN UPDATED REVIEW

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Abstract: *Bauhinia tomentosa* L. is a small tree belongs to the Fabaceae family. It is distributed in Asia, Africa, North America, and Oceania. The *Bauhinia tomentosa* is commonly known as Yellow Bauhinia, Yellow Orchid tree and Yellow Bell Orchid tree. The plant is reported to contain proteins, amino acids, minerals, alkaloids, flavonoids, phytosterols, saponins, tannins, phenolic compounds, fixed oils and fats. Pharmacological studies proved its anti-oxidant, anti-bacterial, anti-lipidemic, anti-ulcer, immunomodulatory, anti-diarrhoeal, anti-microbial and anti-diabetic activities.

Key words: *Bauhinia tomentosa*, pharmacology, phytochemistry, Anti-ulcer

INTRODUCTION

Genus *Bauhinia* has played a significant role in humancivilization since ancient times. Genus *Bauhinia* is comprised of trees and shrubs which grow in warm climate. About 300 species of *Bauhinia* are found in tropical regions with 5-7 m tall tree in deciduous forests. (Fatima et al., 2021). *Bauhinia tomentosa* L. commonly known as Yellow bell orchid tree is one of the best, versatile, used household remedy for many manifestations. The generic name commemorates the Bauhin brothers Jean and Gaspard, the Swiss botanists; the two lobes of the leaf exemplify the two brothers. *Tomentosa* derived from tomentose, meaning with dense, interwoven hairs (Manodeep et al., 2011). It is usually a scrambling, many stemmed shrub or small tree reaching 4m (max.8) in height, the branches often drooping, with many slender twigs (Swarnalatha et al., 2010). Leaves are deeply divided for almost half their length, with a small apical appendage between the lobes; each lobe is oval to almost elliptic, most often small about 2.5 x 2.5 cm, but may be up to 8cm, the colour of the leaf is pale fresh green. The apex of each lobe is broadly tapered. The base of the whole leaf is shallowly lobed and the length of the leaf stalk is usually around 10-30 mm long (Manodeep et al., 2011).



Taxonomy classification (Grace et al., 2014)

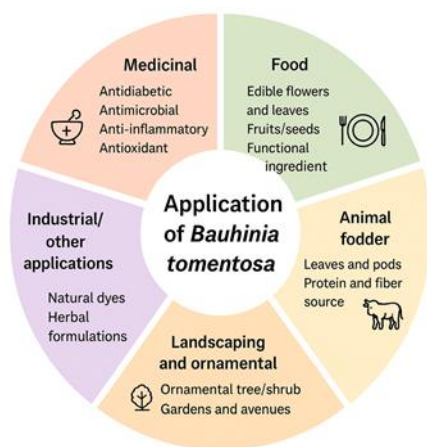
Kingdom	Plantae
phylum	Tracheophyta
Class	Magnoliopsida
Subclass	Rosidae
Order :	Fabales
Family	Fabaceae
Genus	<i>Bauhinia</i>
Species	<i>tomentosa</i>

Vernacular name (Grace *et al.*, 2014)

English	Butterfly Tree
Tamil	Kanjana
Sanskrit	Phagulu
Hindi	Kachnar
Urdu	Kachnar/Kachnal

Ethanopharmacognosy (Manodeep *et al.*, 2011)

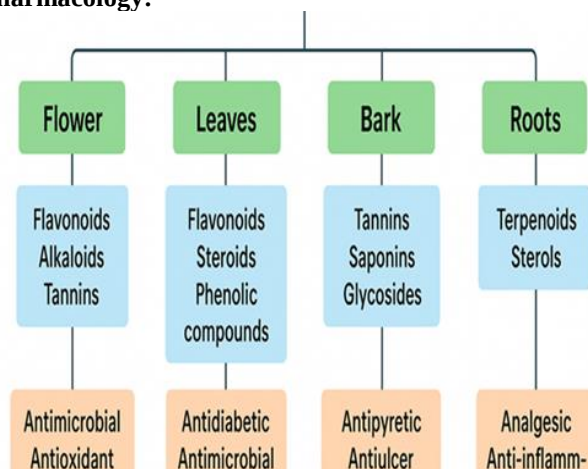
Parts	Uses
Seed	Tonic and aphrodisiac, anti diabetic
Fruit	Diuretic
Leaf	Abscesses
Root	Abdominal troubles, anthelmintic
Bark	Wounds, tumours
Plant	Snake bite, scorpion sting
flowers	Dysentery



Parts	Phytoconstituents
Roots	Carbohydrates , reducing sugars, fixed oil/ fats, gums, mucilage, steroid and flavonoids (Manodeep <i>et al.</i> , 2011), tannins, saponins, glycosides, alkaloids(Shanthini & Sameemabegum, 2023).
Leaves (ethanolic)	Rutin, phenols, tannins, flavonoids, saponins,steroids,carbohydrates (Shanthini & Sameemabegum, 2023), kaempferol-7-0-rhamnoside, kaempferol-3-0-glucoside, quercitin-3-0-glucoside and quercitin-3-0-rutinoside (Gautam <i>et al.</i> , 2012)
Flower (aqueous, methanolic)	Carbohydrates , glycosides , alkaloids , phytosteroids , flavanoids , saponins , tannins , phenolic compounds, fixed oils and fats, 1-(2'-

	hydroxy-4'-methoxyphenyl)-3-(4"-methoxyphenyl)-2-hydroxypropane-1,3-dione,5-hydroxyflavone3,5,7,3',4'-pentahydroxyflavone,3,5,7,2',4'-pentahydroxyflavone,5,7,3',4'-tetrahydroxyflavone-3-O-rhamnoside (Manodeep <i>et al.</i> , 2011)
Seeds(8% ethanolic H ₂ SO ₄ , ethanolic extract)	Ebony oil, protein, pentosan ,mucilage and saponins (Grace <i>et al.</i> , 2014), crude protein, lipids, flavonoids (Shanthini & Sameemabegum, 2023).
Fruits	Carbohydrates, proteins, tannins, alkaloids, flavonoids (Shanthini & Sameemabegum, 2023).
Whole plant	Alkaloids, steroids, flavonoids, tannins, phenolic compounds (Shanthini & Sameemabegum, 2023).

Pharmacology:



P a r t s	Extracts	Bioactivity
Leaves	Aqueous, chloroform, methanol, ethanol, petroleum ether, ethyl acetate	Antibacterial (Mythreyi <i>et al.</i> , 2005)
	Petroleum ether, chloroform, ethyl acetate, methanol	Anthelmintic, (Shanthini & Sameemabegum, 2023)
	Ethanol	Antihistaminic, Anti-inflammatory, Antigoitrogenic (Shanthini & Sameemabegum, 2023)
	Aqueous, ethanol	Anticonvulsant (Risa <i>et al.</i> , 2004)
	Ethanol	Anti-anxiety, Anticatatonic, Antidepressant (Sathya <i>et al.</i> , 2011)

	Aqueous	Antidiabetic (Devaki <i>et al.</i> , 2011)
	Methanol	Anti-ulcerative colitis (Kannan and Guruvayoorappan, 2013)
		Nephroprotective (Kannan <i>et al.</i> , 2016)
Roots	Ethyl acetate, hexane, methanol	Anticancer (Shanthini & Sameemabegum, 2023)
		Antibacterial (Dugasani <i>et al.</i> , 2010)
	Aqueous, ethanol, ethyl acetate, hexane, methanol	Antifungal (Dugasani <i>et al.</i> , 2010)
	Ethanol, aqueous	Antihelminthic (Aditya <i>et al.</i> , 2013)
	Aqueous, methanol ethanol	Analgesic (Tiwari and Singh, 2013) Anticancer (Shanthini and Sameemabegum, 2023)
	Petroleum ether	Antidiabetic (Kaur <i>et al.</i> , 2011)
Flower	Methanol	Antinociceptive Antipyretic (Tiwari and Singh, 2015)
	Aqueous	Antioxidant (Banerjee and De, 2014)
	Ethanol	Antidiabetic, Antihyper-lipidemic (Mannangatti <i>et al.</i> , 2010a) Antioxidant (Mannangatti <i>et al.</i> , 2010b) Wound healing (Shanthini and Sameemabegum, 2023)
Stem	Methanol	Antinociceptive, Antipyretic (Tiwari and Singh, 2015)
	Aqueous, ethanol	Antidiabetic (Tiwari and Singh, 2014)
	Ethanol	Nephroprotective (Shanthini and Sameemabegum, 2023)
	Aqueous and alcoholic	Antiulcer (Shanthini and Sameemabegum, 2023)

	Ethanol	Hepatoprotective (Shanthini and Sameemabegum, 2023)
Whole plant	Ethanol	Antiarthritic (Shanthini and Sameemabegum, 2023)

CONCLUSIONS

This review revealed that *Bauhinia tomentosa* L. possesses a wide range of ethnomedicinal uses, with scientific evidence supporting some of these traditional applications. Hence, further bioactivities and phytochemical studies should be conducted to produce more scientific evidence to confirm the ethnomedicinal uses for standardization, safety, and efficacy purposes. Isolation and characterization of the bioactive compounds from this plant may provide promising lead molecules for future research on diseases such as cancer. Once identified, these compounds could be synthesized in the laboratory to enable large-scale production.

Conflict of interest

Authors declare no conflict of interest

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