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PHARMACOGNOSTIC AND PHYTOCHEMICAL EVALUTION OF *BAUHINIA X BLACKEANA* LINN LEAVES

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ABSTRACT

Various traditional systems of medicine enlightened the importance of the leaves and The present study was aimed at pharmacognostic and preliminary phytochemical evaluations of *Bauhinia X Blackeana* belongs to the family Fabaceae. It is a vegetable tree with vast thick leaves and striking purplish red blooms. The fragrant, orchid-like blossoms are typically 10 to 15 centimeters (3.9 to 5.9 in) over, and sprout from early November to the finish of walk. The histological studies gives the transverse section (TS) of leaf and powder characters like xylem vessels, calcium oxlate crystals, and the quantitative microscopy like veinislet, vein termination, stomatal number, stomatal index, palisade ratio of the leaves was studied and characters of leaves were documented. Physicochemical parameters like total ash value, water soluble ash value and acid insoluble ash value were determined. The water soluble extractive, alcohol soluble extractive and ether soluble extractive were also determined. The leaves were gathered, dried and made into powder and subjected to Soxhlation by utilizing methanol. The results obtained from standardization of Leaves of *Bauhinia X Blackeana* reveals details of the microscopical and macroscopical characters, physicochemical characters that characterize avoiding the adultration from the genuine plant drug. The present study provides pharmacognostical, and physicochemical details of the leaves of *Bauhinia X Blackeana* which are useful in laying down standardization and pharmacopoeia parameters. The phytochemical screening was performed for the concentrate and results demonstrated the

nearness of carbohydrates, steroids, alkaloids, proteins, flavonoids, terpenoids, phenolics, tannins.

KEYWORDS: Bauhinia X Blackeana, Physicochemical parameters, carbohydrates, steroids.

INTRODUCTION

Plants play an important role in maintaining human health. *Bauhinia* variety of family Caesalpiniaceae (Fabales) contains 15 species that happens in India. Some of them are bushes or trees while a couple are climbers. *Bauhinia x Blackeana* (Hong Kong orchid tree) this little tree develops to around 20 feet tall with a light dark smooth bark and an umbrella-shape propensity. It has rich rose-purple fragrant blooms with pink stamens; It is additionally sterile so it doesn't set seed units. This semi-deciduous tree can be dry season deciduous in dry soils, icy deciduous in case of an ice yet even in a watered hotter areas will drop some of its dark green leaves in spring similarly as it blossoms and can in some cases be found in sprout totally without leaves so the blooms are significantly more detectable. Plant in full sun in a moderately very much depleted soil and inundate frequently too periodically.[1]

This plant is believed to be an inadvertent crossover between *B. Purpurea* and *B. Variegata*. It was found on the seashore of Hong Kong Island in Pok Fu Lam, close to the vestiges of a house in 1880 by Sir Henry Blake, a British Governor of Hong Kong from 1898 to 1903 and an eager botanist.

The principal logical depiction of the Hong Kong orchid tree as another species was distributed by S. T. Dunn, administrator of the Botanical and Forestry Department, in 1908. He allotted it to the family Bauhinia and named the species, Blackaena, after its pioneer, Sir Henry Blake. As per another story, the plant was really named after his better half, Lady Edith Blake. She was a gifted craftsman, painting watercolors of plants, blossoms and butterflies. She could join her masterful capacities and her enthusiasm for butterflies to create a gathering of almost 200 watercolors. No less than one more plant was named after her - Quercus blakei (syn.Q.Edithae) - the new species oak with the longest oak seed that she had painted. Edith Blake's biography is an entrancing story of sentiment, the British Empire or more all her affection for butterflies and plants. Her life was loaded with movement and energy, and little did she understand that her work of art would give a vital and enduring logical heritage.

The variety name *Bauhinia* was given after the sixteenth century Herbalists Jan and Caspar Bauhin.

After the giving back of the settlement to China, an exceptional honor was made to supplant the British Imperial respects. The honor is known as the Grand Bauhinia Medal or GBM for short.[2]

TAXONOMICAL CLASSIFICATION

- Kingdom : Plantae
- Subkingdom : Viridiplantae
- Infra kingdom : Streptophyta
- Super division : Embryophyta
- Division : Tracheophyta
- Class : Spermatophyta
- Superorder : Rosane
- Order : Fabales
- Family : Fabaceae
- Genus : *Bauhinia L. Bauhinia*
- species : *Bauhinia X Blackeana* S.T Dunn (*Purpurea x Variegata*) *bauhinia.*

MATERIALS AND METHODS

Plant material

The new leaves of *Bauhinia x blackeana* were gathered in the long stretch of September 2017 thimmapur village, district karminagar, telangana India. New leaves that were gathered are washed and sun dried for additionally thinks about.

Extraction method

Methanolic extraction of *Bauhinia x Blackeana* leaves were prepared by soxhlation method at suitable temperature 50gms of powdered leaves are prepared as a thimble and placed in the condenser, and in the round bottomed flask required amount of methanol was taken.[3-4]

Microscopy evaluation

The following microscopic characters were performed and noted: size, shape, color, taste, odour, midrib, lamina, venation, apex, base etc.

Microscopy

Amid the pharmacognistic think about the upper layer of the epidermal cell layer of leaves was cleared with chloral hydrate arrangement and warmed for 30 minutes. The tissue was stressed with phloroglucinol and hydrochloric acid and mounted with glycerin and saw under compound light magnifying lens. By saw under magnifying lens these are watched. They are epidermal cells, stomatal, and epidermal hairs.[5-6]

Powder analysis

Little measure of leaf powder of *Bauhinia x Blackeana* was gone up against a perfect glass slide and excess powder was tapped. To the powder include 1-2 drops of phloroglucinol and a drop of concentrated hydrochloric acid corrosive were incorporated and properly mixed with brush, mounted with cover slip after development of glycerin water. The slide was then observed under amplifying focal point with sensible intensification. The trademark features of the powder viz epidermal cells, vascular tissues, xylem fibers, stomata, palisade cells, calcium oxalate gems. Etcetera was recorded. Lignified cells, fibers and stone cells appear in pink shading. Starch grains were seen by extension of 2-3 drops of iodine for the powder. Nearness of the starch grains can be recognized by the improvement of blue shading.[7-8]

Phytochemical investigation

The shade dried and coarsely powdered leaves were removed dynamically with different solvents by using soxhlet device and separated using fundamental compound tests for preliminary screening of various social affairs of Phytoconstituents, for instance, alkaloids, flavonoids, phenolic acids, sterols, cardiovascular glycosides, tannins, and so on.[9-10]

Qualitative and quantitative investigation

The epidermal segments of leaves are subjected to quantitative leaf microscopy to decide palisade proportion, stomatal record, stomatal number, vein islet number and vein end number.[12] Other physical parameters decided for the powdered leaves were dampness content, add up to fiery remains, water-insoluble cinder, corrosive insoluble slag esteems.[11,12]

RESULTS AND DISCUSSION

Microscopic characters of leaves

- Shape : Orbiculate
- Color : Green

- Margin : Lobed
- Apex : Emarginate
- Venation : palmate
- Base : Chordate
- Height : 12-20 feet
- Width : 15-20 feet

Fig No. 1: Tree.

Fig No. 2: Flower.

Fig No. 3: Leaf.

Microscopical Studies

The transverse section of leaf showed the following characteristics

Midrib

Upper epidermis was multilayered; indicated upper palisade cells, orchestrated in single layer, prolonged and compact; supple parenchyma were thin walled, loosely masterminded and installed with xylem vessels; endodermal layers demonstrated single layered cells, encompassing the vascular package; bring down epidermis as like upper epidermis; cone like and upper unicellular trichomes secured with thick divider.

Micoroscopical examination likewise demonstrated the nearness of trichomes and calcium oxalate gems in *Bauhinia x Blackeana.*

Fig no. 4: trichomes.

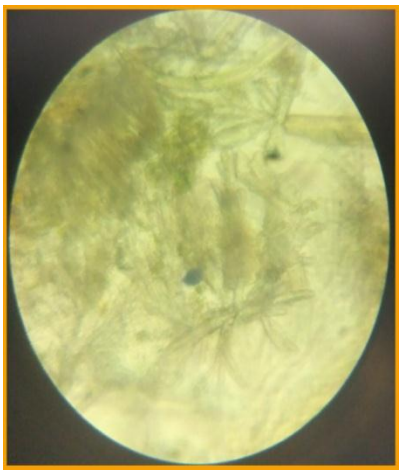

Fig no. 5: phloem fibres.

Fig no. 6: Calcium oxalate crystals.

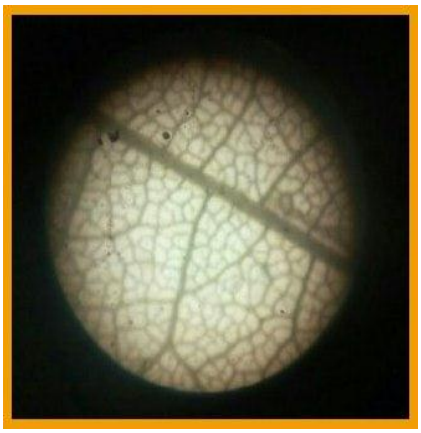

Fig no. 7: vein islet.

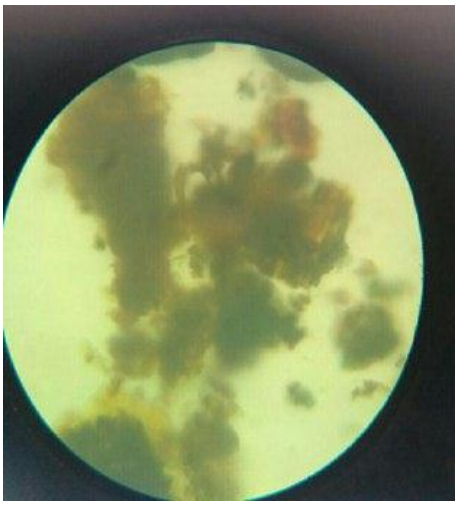

Fig no. 8: Starch grains.

Fig no. 9: TS of leaf.

Phytochemical screening

The consequence of photochemical screening of the concentrate *Bauhinia x Blackeana* leaves uncovered the nearness of phenolic mixes, steroids, alkaloids, tannins and starches. These auxiliary metabolites are known to have different pharmacological impacts and might be in charge of the different activities of *Bauhinia x Blackeana.*

Table 1: preliminary phytochemical screening.

S.no	Plant constituents	Methanolic extract
1	Carbohydrates	+
2	Phenols	+
3	Tannins	+
4	Flavanoids	+
5	Alkaloids	+
6	steroids	+
7	proteins	+
8	Glycosides	_
9	Amino acids	+

Table 2: Results of quantitative microscopy on *Bauhinia x Blackeana* leaves.

Parameters	value
Vein islet number	20.25/mm²
Vein termination number	27.5/mm²
Palisade ratio	5.4/mm²
Calcium oxalate crystals	28.4-55.6µ
Starch grains	5.48µ
Phloem fibres	4.32µ

Table 3: physicochemical parameters of *Bauhinia x Blackeana* leaves.

Parameters	Value % w/w
Total ash	6%
Acid insoluble ash	1.75%
Water soluble ash	3%
Water soluble extractive	11.3
Alcohol soluble extractive	9.7
Foreign organic matter	0.8
Moisture content	55

Bahunia blackeana is used in the treatment of various disease aliments. The evaluation and standardization of a plant is an important part of inaugurating its proper identity. Before any crude drug can be added in a herbal pharmacopoeia, pharmacognostic parameters and standards must be established. The results of the present study could stay as a basis for proper identification, collection and study of the plant. The pharmacognostical characters of the leaf

described, separates it from other plants of the geneus. Numerical values and quantitative leaf microscopy are unique to the plant and are required in its standardization.

CONCLUSION

The pharmacognostic parameters, which are being announced for the introductory, could be useful in the standardization of a crude drug. The data given in the present investigation is also helpful in the preparation of the crude drug's monograph and inclusion in various pharmacopoeias.

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