

## Study on the phytochemical constitution of *Albizzia lebbeck* Benth

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The macroscopic character of the leaf, physical constant values, extractive values, behaviour of powder with different chemical reagents, fluorescent character under ultra violet light after the treatment with different reagents of the powdered leaf of *Albizzia lebbeck* Benth (Leguminosae) were studied to fix some pharmacognostical parameters. Preliminary phytochemical screening on the methanol extract of the plant were also performed with the view to identify the plant character in future research.

Key words : Phytochemistry, Alkaloids, Medicinal plant, *Albizzia*, Flavonoid.

### INTRODUCTION

In angiosperm Leguminosae is considered to be the second largest family *Albizzia lebbeck* (subfamily: Mimosasea) is predominantly used in the rheumatic treatment. The leaf extract of *Albizzia lebbeck* mixed with cow's milk is given as a immediate remedy for Rheumatism. It is widely distributed majestic deciduous tree with a spreading crown equal to its height. Kasthuri *et al.* (2000) analyzed anticonvulsive activity of *Albizzia lebbeck* from experimental animals. Une *et al.* (2001) studied the chemical ingredients and pharmacological profile of different part of *Albizzia lebbeck*. The drug extracted from *Albizzia lebbeck* is used to treat bronchial asthma. It occupies an important place in Indian system of medicines (Tripathi *et al.*, 1982). Some steriogenic effects of *Albizzia lebbeck* in Guinea pigs were identified (Tripathi *et al.*, 1982). Almost all the part of the plant is used for various ailments like rheumatism inflammations, Ophthalmic, depurative and restorative Leprosy and Leucoderma. The present investigation deals with studies on some important pharmacognostical profiles of the leaf and its powdered form being reported here.

### MATERIALS AND METHODS

*Albizzia lebbeck* was collected from in and around Coimbatore. For the pharmacological analysis, the leaves of *A. lebbeck*, were taken, shade dried and powdered in Willey mill and passed through 40mesh sieve and processed for powder analysis and stored in an air tight container for further use

Reagents: All the reagents were of analytical grade and obtained from S.D. fine chemicals Ltd. Mumbai.

Microscopic studies of the plants were observed

(Iyenkar and Nayak, 1975) and organoleptic evaluation (colour, odour, taste, texture of the plant powders were observed and regarded (Jackson and Snowdown, 1968) water soluble extractive values was detennined by the process of maceration. Other extractive values were detennined by successively starting from petroleum ether (60°C-80°C) Benzene, chlorofonn, methanol by using soxlet extraction were obtained after evaporation solvent under reduced pressure. The physical constant values were detennined by phannacopical methods (Anonymous, 1966) Fluorescence property of the powder was studied under daylight and UV-light. (Kokoshi, 1958 and Chase and Pratt, 1949) physical constants and chemical reaction of powder (Anonymous, 1970).

Preliminary phytochemical screening were carried out for alkaloids flavonoids, steroids, resin, phenolic compounds, proteins, amino acids, gums and mucilage's and fats (Harbourne, 1973)

### RESULTS AND DISCUSSION

The organoleptic evaluation of the leaves of *Albizzia lebbeck* given (Table 1). In fluorescence analysis, the colour was observed under daylight and UV light. They varied widely across the lights applied shown in (Table2). Total ash content of the plant are given in (Table 3). The powder was treated with various chemical reagents and the colour changes observed was presented in the (Table

**Table 1 : Organoleptic evaluation**

Attributes	<i>Albizzia lebbeck</i> -leaf
Colour	Parrot green
Odour	Aromatic
Taste	Bitter
Texture	Hard

**Table 2 : Fluorescence analysis under day light and UV -light**

Powder with different chemicals	- Leaf	
	Albizzia lebbbeck DAY Light	UV Light
Powder as such	Dark green	Green
Powder with H <sub>2</sub> O	Olive green	Green
Powder + Benzene	Light green	Light green
Powder + NaOH	Golden brown	Brown
Powder + HCl	Dull green	Dull green

**Table 3 : Total ash value**

Name of the plant	Amount in percentage on dry weight basis %
<i>Albizzia lebbbeck</i>	3.3 ± 0.599

Results are expressed as Mean ± SE in %

4). Active principle evaluation was shown in the (Table 5).

The results of the present phytochemical screening revealed the presence of all active principles like a glycons, unsaturated sterols; triterpenes, cardiacycosides and

**Table 4 : Behavior of powder with different chemicals under day light**

Chemicals	Albizzia lebbbeck-leaf
Powder as such	Dark green
Powder + 1N HCl	Light green
Powder + 1N NaOH	Truck brown
Power + 50 % HNO <sub>3</sub>	Golden brown
Powder + 50% H <sub>2</sub> SO <sub>4</sub>	Light green
Powder + acetic acid	Dark green
Powder + ammonia	Light green
Powder+ ferric chloride	Dull green
Powder + Ethanol	Dark green
Powder + Acetone	Light green
Powder+ water	Olive green

**Table 5 : Active principle evaluation**

Active principle	Degree of precipitation
	Albizzia lebbbeck-leaf
Alkaloids	++
Flavonoids	++
Steroids	+
Tannins	+
Ahthroquinones	+
Glycosides	-
Saponins	+
Resins	+
Triterpenoids	-
Phenols	+
Gums & Mucilage	+
Proteins	+
Amino acids	+
Fats	-

++ Denotes positive: + denotes moderate: - denotes negative

saponin were rich. (Chopra *et al.*, 1956). The fluorescence behaviour of leaf powder with some chemical reagents is also reported with its microscopic characters. The various extracts of leaves revealed the presence of alkaloids, flavonoids, resins, saponins, terpenoids, tannins, proteins and reducing sugars (Kakrani *et al.*, 1991). Behavioral characteristics of the leaflets with different chemical reagents will help for proper identification of the leaves. Different extractive values and chemical group tests of extracts show a path for isolation of different active constituents present in those extracts.

In the preliminary phytochemical analysis, *Albizzia lebbbeck* showed the presence secondary metabolites like volatile oils, tannin and steroids. Early studies were reported that bark and leaves of *delonix elata* plant contain anti-inflammatory activity owing to the presence of active principles. In addition to the above identical compounds, other metabolities like gums and mucilages were also found in the leaves of *Cassia auriculata*. The presence of such compounds in various species of *Cassia* is a common fact. Similarly the species of *Albizzia lebbbeck* and also contain gums and resins.

### Conclusion:

In Pharmacognosy, to study the external characters of drug, the taxonomic parameters were used and for internal characters, histological parameter was used. Physical constants were determined by pharmacopial methods. Fluorescence character was also observed under day and UV -light.

Preliminary phytochemical screening of the drug powder revealed the presence of alkaloids, flavonoids, tannins, anthroquinones, glycosides, saponins, resins, triterpenoids, phenols, gums and mucilage, proteins and aminoacids. These studies will help in proper identification of the plant as a whole and its powder form for future studies.

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