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Preliminary Phytochemical and Physicochemical investigations of *Albizia lebbeck* (L.) Benth. Seed oils

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Abstract- *Albizia lebbeck* (L.) Benth. are generally known as shirisha in hindi. *A. lebbeck* (L.) Benth. is a medium to large tree belong to the family fabaceae (Subfamily mimosaceae). In Ayurveda *A. lebbeck* (L.) Benth is used in many disease conditions for its anti histaminic, anti inflammatory, anti asthmatic, anti anaphylactic and anti microbial activities [1]. Premliminary phytochemical analysis of the presence of phenol, terpenoids, flavonoids, carbohydrate and protain. Physicochemical studies revealed acid value (2.34 ± 0.0), iodine value (102.3 ± 0.6), moisture content (0.24 ± 0.2) and physical properties study of seed oil extract showed color of oil extract as dark brown and order unpleasant.

Keywords- *Albizia lebbeck* (L.) Benth., seeds and oil, phytochemical, physicochemical.

I. INTRODUCTION

Plants are most important source of flavor, traditional medicine and fragrance industries. These compounds could be gums, latex and oils. In ancient time, food in security has been a fundamental problem comforting most developing countries of the world, fat and oil play vital as a source of nutrient for both human and animals [2]. Plant has played a significant role in maintaining human health and improving the quality of human life for thousands of years [3]. Oil and fats are important raw materials for both edible oil are important parts of our diet and more than 90% of the world production form plant seed oil, animal. Seed oil may be liquid at room temperature. It is suitable for food, cooking and biodiesel use.

Albizia lebbeck (L.) Benth. are popularly known as siris is a medium to large tree[4]. The genus *Albizia* comprises approximately 150 species, These are mostly trees and shrubs native to tropical and subtropical regions of Asia and Africa [5]. *A. lebbeck* belongs to the family Fabaceae[4]. A. lebbeck seed are small, oblong, approximately 9 by 7 mm long and broad, compressed and light brown in color [6].

A. Lebbeck (L.) Benth. of the family Fabaceae that grows upto 30 meter high. It is large erect unarmed, deciduous plant [7]. In angiosperm Leguminosae is considered to be the second largest family *A.lebbeck* (subfamily- mimosasea) is predominantly used in the rheumatic treatment [8]. And it is nitrogen – fixing. A. lebbeck (L.) Benth. seeds are use to cure piles, diarrhea, scrofulous swelling, aphrodisiac and tonic to the brain and it oil is applied topically inleucoderma[9].

Figure No.1: Seeds of *A. lebbeck* (L.) Benth.

II. MATERIAL AND METHODS

Collection of Plant Materials

Albizzia lebbeck (L.) Benth. seeds were sampled in a collection form the local area ajeetpura, district of swai madhopur of rajasthan, India.

Preparation of plant extracts

The seeds were removed from their pods and ground to powder from using grinder- machine and the seed power to extraction by cold maceration using acetone, petroleum ether, carbon tetrachloride and alcohol solvent and second method soxhlet extractor using n-hexane at 60 ^{0}C for 46 hours.

Phytochemical Evaluation

Maceration method (Aqueous Extraction)

Powdered material of *A. lebbeck* (L.) Benth bark and root (10 gm) is taken for maceration with 100 ml of different solvent as petroleum ether, carbon tetrachloride, alcohol and acetone extract for 2 days on rotary shaker. The bark and root extract is filtered by using round whatman no.1 filter paper. All the extracts were stored at 4 ^{0} C for preliminary phytochemical analysis.

Preliminary Phytochemical Screening

Test for phenol

The extract (500mg) was dissolved in 5ml of distilled water. To this, few drops of neutral 5% ferric chloride solution were added. A dark green clour indicated the presence of phenolic compounds.
Test for terpenoids

2 ml of the organic extract was dissolved in 2ml of CHCl3 and evaporated to dryness. 2ml of conc. H2SO4 was then added and heated for about 2 minutes. Development of a grayish color indicates the presence of terpenoids

Test for flavonoids

The seed extract (3 ml) was added to a concentrated sulphuric acid (2 ml) and 0.5g of Mg. A pink or red coloration that disappear on standing (2 min) indicates the presence of flavonoids.

Test for alkaloids

About 1 ml of the test extract sample in a test tube and adds few drop of dilute hydrochloric acid (HCL). Than six drops of Wagner's reagent was added. The appearance of yellow or and reddish color precipitate of alkaloids.

Test for phlobatannins

About 1 gram powder sample was mixed with distill water in a test tube and then shake it well after filter. Then to each seed extract, 1% aqueous hydrochloric acid(HCL) was added then boiled with the help of Hot plate. Formation of red color indicates the presence of phlobatannins.

Test for saponin

About 1 ml of the extract sample in a test tube. The extract was dissolved in 5 ml of distilled water. Shaken well and the development of stable foam. The presence of saponin.

Test for carbohydrate

About 5 ml of Fehling a solution and Fehling b solution was added to 0.5 ml of extract and heated. The formation of red and yellow precipitate indicates the presence of carbohydrates.

Test for proteins

About 0.5 ml of the test extracts in a test tube and freshly prepared 0.2 percent ninhydrin reagent 2 drops added and heated. Formation of purple and pink color indicates the presence of proteins.

Fluorescence Analysis

Fluorescence analyses of the powdered were done for identification. The powdered were treated with different chemical solvent and observed in daylight and under ultra violet light.
Fluorescence Analysis of the successive extracts of plant part sample: Successive extracts of all the plant part sample viz petroleum ether, carbon tetrachloride, alcohol and acetone were observed in day light and UV light [10].

Physicochemical Evaluation

Moisture

The moisture content of the oil sample was determined using the method described by Hossain [11]

Acid value

The acid value of the seed oil sample was determined using the method described by Babatunde [12]

Saponification value

The saponification value of the oil sample was determined using the method described by Babatunde [12]

Iodine value

The iodine value of the seed oil sample was determined using the method described by Babatunde [12]

III. Result and Discussion

The present study involved the collection, extraction and preliminary phytochemical and physicochemical investigations. The phytochemical test was done by various seed oil extracts with four different solvent petroleum ether, carbon tetrachloride, alcohol and acetone were done by color test. The results were presented in following the table.

Table 1: Preliminary phytochemical screening of seed extract of *Albizzia lebbeck* (L.) Benth.

Phytochemical Test	Alcohol	Acetone	Petroleum ether	Carbon tetrachloride
Alkaloids	+	+	-	-
Saponins	-	-	-	+
Terpenes	+	+	+	+
Phenol	+	+	+	+
Flavonoids	+	+	-	+
Phlobatannins	-	-	-	-
Carbohydrates	+	-	+	+
Proteins and Amino Acid	+	-	+	+

+ Present and – Absent

Table 2: Fluorescence Analysis of *A. lebbeck* (L.) Benth. with different chemical solvent

S.No	Powdered + Chemical	Day light	UV light
01	Seed powdered +PE	Yellow	Blue
02	Seed powdered +CT	Yellow	Yellow blue
03	Seed powdered +AL	Yellow	Light blue
04	Seed powdered +AC	Yellow	Yellow blue

(Petroleum ether (PE), Carbon tetrachloride(CT), alcohol(AL), acetone(AC)

Figure No.2: Seed powdered with different chemical solvent in day light

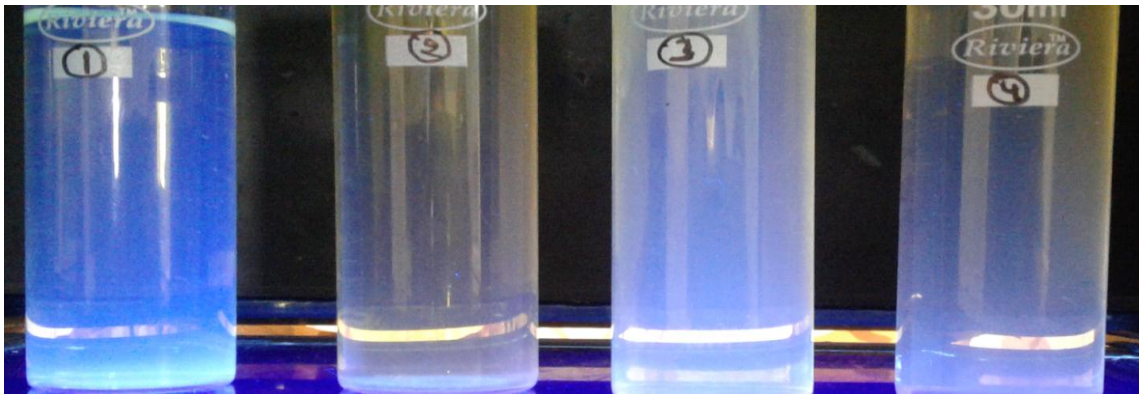

Figure No.3: Seed powdered with different chemical solvent in uv light

Table 3: Physical properties of the seed oil extract of *A. lebbeck* (L.) Benth.

Parameter	Result
Color of seed oil extract	Dark brown
Odour	Unpleasant

Table 4: Physicochemical characteristies of *A. lebbeck* (L.) Benth.

Parameter	Result
Moisture content (%)	0.24 ± 0.2
Acid value (%)	2.34 ± 0.0
Saponification value (Mg KOH/gram)	205.2 ± 1.0
Iodine value (gram/ 100 gram)	102.3 ± 0.6

Values are mean of four replicates ± standard error

IV. CONCLUSION

Phytochemical screening can serve as a supporting evidence for proper credentials and validation of a plant. Ahead of any drug is included in the pharmacopoeia, these principles must be established. In the present work can contribute in checking the adulteration or substitution of this plant drug besides providing chemical evidence for the therapeutic action of this traditional drug source.

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VI. REFERENCE

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