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Preliminary phytochemical investigations of the Bark and Root Extracts of *Albizia lebbeck* (L.) Benth. of Ranthambore populations

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Abstract- *Albizia* is the very valuable medical plants, the whole part of the plants are very useful in the medicines in India as well as the other part of the world in the different medicines systems. The bark and root of *Albizia*, belonging to the family Fabaceae, is an important medicinal parts of the tree found in India. The aim of the study is the preliminary phytochemical evaluation of the bark and the root of the concerned tree. The preliminary phytochemical investigation of the plants is very significant commercially and has great importance in pharmaceutical industry for the production of the new drugs for curing of various diseases. It is expected that the important phytochemical properties recognized by our study in the indigenous medicinal plants of Albizia lebbeck (L.) Benth. will be very helpful in the curing of different diseases of this region.

***Keywords*:** *Albizia lebbeck* (L.) Benth., Bark, Root.

I. INTRODUCTION

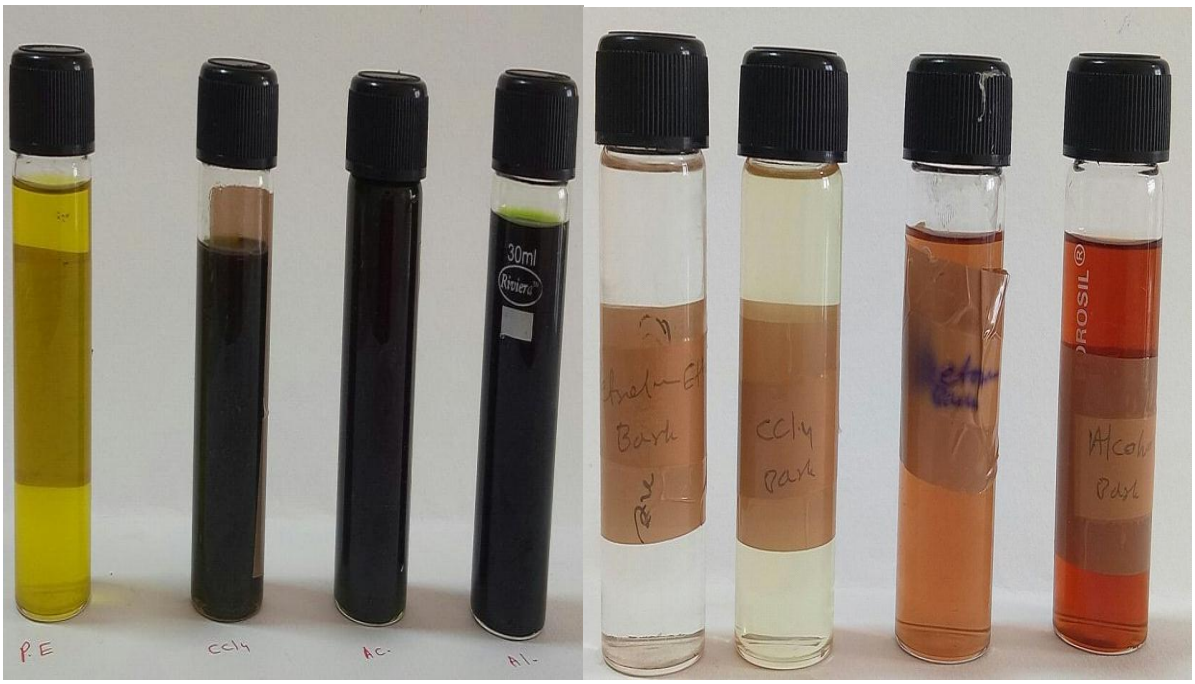
Plants are the richest source of drugs of traditional system of medicine, current medicines, nutraceuticals, food supplements, folk medicines, pharmaceutical intermediates and chemical entities for synthetic drugs [1]. India is the largest producer of medicinal herbs and is appropriately called the botanical garden of the world [2]. Drugs from the plants are without difficulty available, less exclusive, safe, and capable and rarely have side effects [3] and about 3.4 billion people in the developing world depend on plant-based traditional medicines (TM) [4]. In plant, phyotochemical (Greek word phyto, meaning plant) are naturally occurring chemical compounds [5]. Phyto constituent are the natural bioactive compounds start in plants. Phytochemicals are mainly divided into two groups as well as primary and secondary constituent. Primary constituent contain common proteins,sugars and amino acid while secondary constituent consists of terpenoid, alkaloids,flavonoids and steroids[6]. Phytochemicals are obviously occurring in the medicinal plants, bark and leaves that have defense mechanism and defend from different diseases [7]. *A. lebbeck* (L.) Benth. belongs to the family Fabaceae commonly known as siris. *A. lebbeck* species many common name in India known as diriina, bage sirsul, beymada, sirai, doddabagi, shrin. *A. lebbeck* (Family: Fabaceae) is a species of albizia[8]. *A. lebbeck* is used as common and universal antidote [9]. Use of *A. lebbeck* has been comprehensively recommended to remove toxins from the body and used in the treatment of respiratory problems like bronchial asthma and seasonal cough and cold.

Uses of Root

A. lebbeck root used ease spasms and stimulate the cardiovascular system, besides having anticancer and spermicidal properties

Uses of Bark

A. lebbeck bark used cures diseases of blood and anthelmintic, skin disease, excessive perspiration, piles [10].



(A) **(B)**

Figure No.1: (A) Root powdered with different chemical solvent (B) Bark powdered with different chemical solvent

II. MATERIAL AND METHODS

Collection and Identification of Plant Materials

The bark and root of *Albizia lebbeck* (L.) Benth. were collected from local areas of sawai madhopur,rajasthan between December 2017 for preliminary phytochemical evaluation.

Preparation of plant extracts

The barks and root were cleaned well with distilled water to remove the dust particles and after drying, the bark and leaf was powdered and stored in clean containers.

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 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 Saponins

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 Terpenoids

About 5 ml of the extract sample in a test tube. The extract was dissolved in 2 ml chloroform and adds 3 ml of contractions sulphuric acid. The upper layer radish brown color shows the presence of terpenoids.

Test for Cardiac Glycosides

About 5 ml of the extract sample in a test tube. The extract was mixed with 2 ml of glacial acetic acid and adds two drop of ferric chloride solution, 1ml contractions sulphuric acid. The appearance of brown color right central precipitates of cardiac glycosides.

Test for Glycosides

About 1 ml of extract sample in a test tube and adds 1 ml of sodium hydroxide. Shake well. The appearance of yellower color precipitates of glycosides test.

Test for Anthranol Glycosides

About 1 ml of extract sample in a test tube and adds 2 drops of ferric chloride ($FeCl_3$) solution. Sample boil five minute and cold after adds 1 ml benzene. The upper layer benzene was separated using ammonia (25% solution). Formation of rose pink color indicates the presence of anthranol glycosides.

Test for Tannins

About 3 ml of the test extract in a test tube and ferric chloride ($FeCl_3$) solution added drop by drop. Blue Black, Dark Green colors indicated presence of tannins.

Test for Steroid

About 1 ml of the test extract in a test tube and 10 ml chloroform dissolved after added 10 ml concentrated sulphuric acid along the side of the test tube. The upper layer turns red color indicating the presence of the steroid.

Test for Proteins and Amino Acid

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 and amino acid.

Test for Carbohydrates

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.

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 [11].

III. RESULT AND DISCUSSION

The present study involved the collection, extraction and preliminary phytochemical evaluation of extracts. The phytochemical test was done by various plant extracts with four different solvent petroleum ether, carbon tetrachloride; alcohol and acetone were done by colour test. The results were presented in following the table.

Table 1: Preliminary phytochemical screening of Root extract of *Albizia lebbeck* (L.) Benth.

Phytochemical Test	Petroleum Ether	Carbon Tetrachloride	Alcohol	Acetone
Alkaloids	+	+	-	-
Saponins	-	+	-	-
Terpenoids	+	-	+	-
Cardiac Glycosides	+	-	-	+
Glycosides	+	-	-	-
Anthranol Glycosides	+	+	+	-
Tannins	-	-	+	-
Steroid	-	-	-	-
Proteins and Amino Acid	+	+	-	+
Carbohydrates	+	+	-	-

+ Present and – Absent

Table 2: Preliminary phytochemical screening of bark extract of *Albizia lebbeck* (L.) Benth.

Phytochemical Test	Petroleum Ether	Carbon Tetrachloride	Alcohol	Acetone
Alkaloids	-	-	+	+
Saponins	+	+	+	+
Terpenoids	-	-	+	-
Cardiac Glycosides	+	+	+	+
Glycosides	-	+	-	-
Anthranol Glycosides	+	+	+	-
Tannins	-	-	+	+
Steroid	-	-	+	+

Proteins and Amino Acid	-	+	+	+
Carbohydrates	-	+	-	-

+ Present and – Absent

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

S.No	Powdered + Chemical	Day light	UV light
1.	Bark powdered +PE	Brown	Blue
2.	Bark powdered + CT	White	White
3.	Bark powdered +AL	Carmine	Blue
4.	Bark powdered +AC	White	White
5.	Root powdered +PE	Yellow	Tan
6.	Root powdered +CT	Black	Blue
7.	Root powdered +AL	Black	Ruby
8.	Root powdered +AC	Green	Crimson

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

Preliminary phytochemical screening of successive extracts *A. lebbeck* (L.) Benth bark and root was done with petroleum ether, carbon tetrachloride, alcohol and acetone. This study has revealed the presence of phytochemicals measured as active medicinal chemical constituent. Important medicinal phytochemicals such as alkaloids, saponins, terpenoids, cardiac glycosides, glycosides, anthranol glycosides, tannins, steroid, proteins-amino acid and carbohydrates were present in the samples. Alkaloids are used in medicines for reducing fever and headache. Bark extract presence four solvent in saponins,cardiac glycosides,anthranol and glycosides. *A. lebbeck* (L.) Benth plants are used for discovering and showing of the phytochemical constituent which are very useful for the manufacturing of new drugs. The preliminary phytochemical investigation of the medicinal plants are most important and have commercial importance in both research institute and pharmaceuticals industry for the manufacturing of the new drugs for treatment of different diseases. Thus we expect that the important phytochemical properties known by our study in the local plant of *A. lebbeck* (L.) Benth will be helpful in the copping different disease of this particular area.

IV. CONCLUSION

Screening of *A. lebbeck* (L.) A Benth plant was analysis to maximum classes of phyto constituents is present. The *A. lebbeck* (L.) Benth. have highest therapeutic efficiency to pharmaceutical field. It bark extract to indicate the more positive result of alcohol and root extract to indicate the more positive result of petroleum ether and other solvent bark and root extract to indicate the result was positive result. *Albizia lebbeck* is used as common and general antidote [12].

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