

PHYTOCHEMICAL SCREENING OF EXTRACT OF ACACIA LEUCOPHLOEA PLANT

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Abstract

Phytochemical evaluation is to confirm the presence of various chemical constituent present in plant. The study reveals the presence of various phytochemicals. Due to higher polarity of methanolic extract, it shows the presence of maximum phytochemical composition especially for Flavonoids, tannins, coumarines and glycosides. These phytoconstituents are independently responsible for the broad range of medicinal properties.

Keyword: Phytochemicals, methanolic, screening, phytoconstituents

1. INTRODUCTION

Acacia Leucophloea belongs to subfamily Mimosoideae of the family Fabaceae having common name HIWAR it is also called *reonja*. Deciduous, middle size tree. Bark whitish. Flowers white or yellowish white[1].

Its leaves, tender shoots, and pods are readily consumed by goats, sheep and cattle. *Acacia Leucophloea* bark has a foul smell and its fibers are used to make fish nets and rough rope. The bark yields water soluble gum of fair quality [2]. Bark is used to purify liquor and yields a reddish-brown stain which is used for the preparation of dyes. Moreover, the bark is used against snake bites[3,4]. Bark and leaves are used for treating renal edema, cardiac edema and indigestion. Leaf juice is administered to treat fever and, mixed with cow's milk, to bleeding piles[5]. An extract of stem bark and leaves of the plant is applied twice daily to cure psoriasis [6].

Phytochemical evaluation is one of the important tools for the quality assessment. This includes preliminary phytochemical screening [7].

The two flavonoids, rutin and quercetin in the extracts of leaves and bark exhibit notable pharmacological

activities. Through the HPTLC method important constituent present in plant i.e. Rutin and quercetin of *Acacia Leucophloea* is estimated [8]. Most suitable method for the estimation of chemical constituents present in plant materials is High performance thin layer chromatography method [9].

2. MATERIAL AND METHOD

2.1. Collection of plant material

The fresh leaves of *Acacia Leucophloea* plant were collected from Melghat region Dist-Amravati (Maharashtra). The experimental site is located between coordinates 20.91° N, 77.75°E and an altitude of 342 m in foothills of Central India experiencing the subtropical climate during winter season in the month Feb 2017. Authentication of plant was confirmed by botanist (Dr.S.K Tippat, Department of Environment Science, Art, and Commerce & Science College Amravati).

2.2. Sample Preparation

The plant of *Acacia Leucophloea* firstly dry at room temperature after drying the sample get grind with the help of mixer. Then to prepare plant extract of methanol with the help of soxhlet apparatus at 62°C. After extract preparation the extract were filter with the help of Whatman filter paper no.1.and reduce the sample to dry and stored in refrigerator.

3. PHYTOCHEMICAL ANALYSIS (Qualitative analysis)

Test for Alkaloids: - 0.4 g extract of each plant was mixed with 8 ml of 1% HCl, warmed and filtered. 2 ml of each filtrate was titrated separately with (a) Mayer's reagent and (b) Dragendorff's reagent (c) Wagner Test, Yellow precipitation for Mayer's reagent, Red

precipitation for Dragendorff's reagent and formation of brown / Reddish precipitate for Wagner reagent was observed to indicate the presence of alkaloids[10].

Determination of flavonoids: - Two methods were used to determine the presence of flavonoids in the plant sample [11].

Cyanide test:-Put small pieces of magnesium ribbon into extract of sample and few drop of con HCl .The presence of bubble clour ranging from orange to red with indicate flavonoids .Red to crimson indicate presence of flavonoids. Crimson to magenta indicate presence of flavonoids Green or blue was presence reaction either aglycone [12].

Test for Phenolic (Tannins) compound

Ferric chloride test: - The extract (50 mg) is dissolved in 5 ml of distilled water. To this, few drops of neutral 5% ferric chloride solution is added. A dark green color indicates the presence of phenolic compounds.

Lead acetate test: - The extract (50 mg) is dissolved in distilled water and to this, 3 ml of 10% lead acetate solution is added. A bulky white precipitate indicates the presence of phenolic compounds.

Gelatin test: - To the extract 1% gelatin solution containing sodium chloride was added. Formation of

white precipitation indicates the presence of tannins [13].

Test for steroids: - 0.5 ml of the each extract was dissolved in 3 ml of chloroform and was filtered. To The filtrate, concentrated sulphuric acid was added by the sides of the test tube, which formed a lower layer. A reddish brown colour ring with a slight greenish fluorescence was taken as the indication for the presence of steroids [14].

Test for Terpenoids (Salkowski test):- 5 ml (1 mg/ml) of each extract was mixed in 2 ml of chloroform, and then 3 ml concentrated H₂SO₄ was carefully added to form a layer. A reddish brown colorations of the inter face was formed which showed positive results for the presence of terpenoids [10].

Test for Saponins:-

Foam Test: - 0.5 gm of extract was shaken with 2 ml distilled water if foam produce persist for ten minute it, indicated the presence of saponins [13].

Test for glycosides:-

Legal's Test: - Extracts were treated with sodium Nitropruside in pyridine and sodium hydroxide. Formation of pink to blood red color indicates the presence of cardiac glycosides [13].

Table 1: Phytochemical analysis of Extract of *Acacia Leucophloea* Plant

S.N	Phytochemical	Tests performed	Methanolic extract
1	Alkaloids	Mayer Test	- -
		Dragendorff's Test	+
		Wagner Test	+
2	Flavonoids	Ferric Chloride	+++
		Alkaline reagent test	+++
		Lead Acetate	+++
3	Tannins	Ferric Chloride Test	+++
		Gelatin Test	+++
4	Terpenoids	Salkowski Test	+
5	Phytosterols	Liebermann Buchard Test	++
6	Chalcone	----	-
7	Cumarine	Fluorescence test	+++
8	Glycosides	Legal test	+++

4. RESULT AND DISCUSSION

Phytochemical evaluation is to confirm the presence of various chemical constituent present in plant. Phytochemical analysis listed in Table No.1. Due to higher polarity of methanolic extract show revealed presence of maximum phytochemical composition especially for Flavonoids, tannins, coumarines and glycosides. These phytoconstituents are independently responsible for the broad range of medicinal properties.

5. CONCLUSION

The presence of various bioactive compounds in the *Acacia Leucophloea* justifies the use of whole plant for various ailments by traditional practitioners. This study determined that Methanolic extract of *Acacia* plant species shows presence of phytochemicals which possesses various biological properties. Further study might provide incentive for proper evaluation of the use of the plant in medicine and in Food Science. Further work, however, still needs to be carried to reveal the structure activity relationship of these active constituents.

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