

Preliminary phytochemical Investigation of Various extracts of Dalbergia sisoo

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Abstract: To screen the Phytochemicals from various extracts of *Dalbergia sisoo* leaf, pod and bark. All the extract were prepared. These extracts were dried to solid matter and subjected to qualitative Phytochemical investigations for the identification of different Phytochemical components. From the result obtained it can be concluded that alcoholic extract of leaf and bark of *Dalbergia sisoo* has significant Phytoconstitutents (viz flavonoids, Glycosides and tannis).

Key words: Alcoholic extracts, Phytochemical, qualitative investigation, alcoholic extract.

I. Introduction

The Phytochemical are natural occurring substances in medical plants to cure various diseases. The Phytochemical screening as qualitative analysis to explore the Phytochemicals present in various parts of plants *Dalbergia sisoo* to investigate the therapeutic uses. The medical plants that had been explore are the rich source of natural medicinal agents [1-2]. *Dalbergia sisoo*, the hard woody plants of hilly area and river side area had been reported for its medicinal importance from ancient era [3]. The plant leaf, pod and bark of various extracts ethanol, aqueous and ethyl acetate has been identified through Phytochemical screening test includes a series of Phytochemicals as flavonoids, tannins, polyphenols, reducing sugars, carbohydrates, proteins, saponins, glycosides, steroids and triterpenoids, free amino acids, antraquinones, alkaloids fats and oils [4-5].

Various observational studies indicate the regular consumption of foods including flavonoids may reduce the risk of several diseases including fever, pain reliefer, neurodegenerative diseases and certian forms of cancer [6].

II. Material And Method

Plant material

The plant material the leaves, the pods and the bark has been collected from Bhounri near Bairagarh Bhopal from native plant *Dalbergia sisoo* (sheesham) at farm sides. The specimen were authetified from Botanical survey of India, Dehradun, Specimen no. 114139. Fresh samples of leaves, pods and bark were dried at room temperature for 6-9 days and was crushed to powdered and weighted before extraction [7-8].

III. Preparation Of Extract

The powdered crushed sample (500g) of leaves, pods and bark defatted with petroleum ether and then extracted with ethanol (80% ethanol and 20% distill water), aqueous extract (90% distilled water and 10% petroleum ether), ethyl acetate extract (80% ethyl acetate and 20% petroleum ether). The material was loaded in soxhlet's extractor in 10 batches (30 cycles each batch). Finally the extractor were concentrated to semi solid mass using rotavapourator under vaccum. The traces of the solvents were removed by keeping the dried extracts into a desiccators [9-10]

IV. Phytochemical Screening

Qualitative Phytochemical analysis of the ethanolic, aqueous and ethyl acetate extracts of *Dalbergia sisoo* leaves, pods and bark was carried out using standard procedures to assess the different Phytochemical constituents in the plant parts. The extract were tested for the presence of active substances such as carbohydrate, reducing sugar, anthraquinones, terpenoids, flavonoids, glycosides, saponins, Alkaloids, Steroids and Triterpenoids, Tannins, Proteins and free amino acids [11].

1. Test for carbohydrate and reducing sugar [12]
a) Iodine Test - These extract (0.5g in 5 ml of water) was added to test tubes and tincture iodine with potassium iodide was added in test tubes. The solution observed the deep blue-black complex.

b) Fehling's Test - These extracts (0.5 g in 5 ml of water) was added to a test tubes and boiling Fehling's solution (A and B) in a test-tube was added. The solution was observed for a colour reaction, a purple ring at the junction of two liquids.

c) **Benedict's test** - These extracts (0.5 g in 5ml of water) was added to test tubes and 5 ml of Benedict's reagent having Cupric ions was reduced to Cuprous ions which forms a red precipitate of cuprous oxide Cu_2O (s).

2. Test for Antraquinones [13].

0.5 g of extracts was boiled with 10ml of sulphuric acid (H_2SO_4) and filtered. The filtrate was shaken in 5 ml of chloroform. The chloroform layer was pipetted into another test tube and 1ml of liquid ammonia was added. The resulting solution was observed for colour changes.

3. Test for steroids and triterpenoids [14].

a) **Libermann Burchard Test** - 0.5 g of extract with few drops of acetic anhydride, boiled and cooled. Concentrated sulphuric acid was then added from sides of test tube (test tube is tilted a little) and observed for the formation of brown ring at the junction of the two layers. Green colour at upper side of ring and deep red colour below indicates a positive test for steroids and triterpenoids.

b) **Salkowski's Test** - 0.5 g of extract was added with 10ml of sulphuric acid and 2 ml of chloroform to form a layer of reddish brown colouration at the interface.

4. Test of Saponins [14]: One gm of leaf extract of plant

Was boiled with 10 ml water for few minutes and filtrate The filtrate was shaken vigorously. The persistent froth shows the presence of saponins.

5. Test for Flavonoids [15].

a) **Ferric Chloride Test** - Test solution (0.5 extract + 5ml distilled water) was treated with few drops of ferric chloride solution would result in the formation of blackish red colour indicates the presence of flavonoids.

b) **Alkaline reagent Test** - Test solution when treated with sodium hydroxide solution (NaOH), shows increase in the intensity of yellow colour which become colourless on addition of few drops of dilute hydrochloric acid.

c) **Lead acetate solution test** - Test solution when treated with few drops of lead acetate (10%) solution result in the formation of yellow precipitate.

6. Test for Glycosides[17].

a) **Keller killiani Test** - Test solution was treated with few drops of glacial acetic acid and ferric chloride solution and mixed. Concentrated sulphuric acid was added, and observed for the formation of two layers. Lower reddish brown layer and upper acetic acid layer which turns bluish green indicate a positive test.

b) **Bromine water test** - Test solution was dissolved in bromine water and observed for the formation of yellow precipitate to show positive result.

7. Test for Alkaloids [18].

Hager's test - Test solution was treated with few drops of Hager's reagent (saturated picric acid solution) formation of yellow precipitate shows a positive result.

8. Test for Tannins[19] - Test solution was boiled in 10ml of water in a test tube and then filtered. A few drops of 0.1% ferric chloride was added and the solution was observed for brown green or a black-blue colouration.

9. Test for protein [20].

Biuret test : Test solution was treated with 10% solution of sodium hydroxide and few drops of 0.1% copper sulphate solution and observed for formation of violet/pink colour gives positive result.

10. Test for Free amino acids [21 a]

Ninhydrin test : Test solution when treated with 0.2% solution of Ninhydrin reagent and boiled, would result in the formation of purple colour suggesting the presence of free amino acids.

11. Test for oils and fats [21 b]

Paper Test : Test solution was treated on paper and pressed, the paper appears translucent in light gives results of presence of oils and fats in test solution.

V. Result

The presence of Phytoconstituents make the plant useful for treating different diseases and have a potential of providing useful drugs of human use. The present study have found that most of the biologically active Phytochemicals were in ethanolic and ethyl acetate extracts of Dalbergia sissoo after further investigations. The medicinal properties would be explore due to the presence of above mentioned Phytochemicals. These Phytochemicals are essential for our body to keep it healthy. They are present in plant vegetables and used as diet. They are therapeutic to various diseases. It is necessary to explore their therapeutic uses in different diseases. It is to explore the particular Phytochemical for peculiar disease. The presence of various Phytochemicals in Dalbergia sissoo extract of ethanolic and ethyl acetate in leaves and bark were found to be therapeutic in various diseases. The presences of Flavonoids and Glycosides in extract of leaves and bark in ethanolic and ethyl acetate.

Table-1-Extracts Yield %.

S. No.	Crushed Powered	Plants Part	Extract	Nature of Extract	Colour	Yield %
1	500g	Leaf	Ethanol	Semi Solid	Dark Green	8.26
2	500g	Leaf	Aqueous	Semi Solid	Dark Green	7.29
3	500g	Leaf	Ethylacetate	Semi Solid	Dark Green	8.48
4	500g	Pod	Ethanol	Semi Solid	Pale green	5.61
5	500g	Pod	Aqueous	Semi Solid	Pale Yellow	4.38
6	500g	Pod	Ethylacetate	Semi Solid	Pale Yellow	6.29
7	500g	Bark	Ethanol	Semi Solid	Dark Brown	8.18
8	500g	Bark	Aqueous	Semi Solid	Dark Brown	10.27
9	500g	Bark	Ethylacetate	Semi Solid	Dark Brown	10.38

VI. Discussion

The Phytochemical screening provides the qualitative analysis to explore the presence of flavonoids, tannin carbohydrate, reducing sugars, anthroquinones, steroids and phenoids, saponins, glycosides, alkaloids, proteins, free amino acids, oils and fats.

Flavonoids have been possess potent antipyretic, analgesic and antihistaminic properties. These enhanced to cure many diseases. To therapeutice effect the plant *Dalbergia sisoo* reveals to be significant. It possess the Phytochemicals which had therapeutic uses in various pharmlological groups. This Phytochemical screening provide us to explore the more molecules in the plant part to explore its natural occurring therapeutic effects. The Phytochemical present in it either free or additive will provide the therapeutic effect against various diseases from this study carried out showed alcoholic extract of leaf and bark of *Dalbergia sisoo* possess a definite Phytochemicals like flavonoids, glycosides, carbohydrate and saponins there by justifying its use in the indigenous system of medicine.

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Table-2 Phytochemical analysis of <i>Dalbergia sisoo</i>										
Sr. No.	Chemical Test	Leaves			Pods			Bark		
		Ehanol	Aqueous	Ethylacetate	Ehanol	Aqueous	Ethylacetate	Ehanol	Aqueous	Ethylacetate
1	Test for carbohydrate and reducing sugars									
a	Iodine Test	+	=	+	+	-	=	=	-	+
b	Fehling's test	+	-	+	+	-	+	+	-	+
c	Benedict's Test	+	-	+	+	-	+	+	-	+
2.	Test for Anthroquinones	+	-	+	+	-	+	+	-	+
3-	Test for steroids and triterpenoids	-	-	+	-	-	+	-	-	+
a	libermann Buchard Test	+	-	+	+	-	+	+	-	+
b	Salkowski's test	+	-	+	+	-	+	+	-	+
4	Test of saponins foam test	-	+	-	-	+	-	-	+	-
5	Test of flavonoids	+	*	+	+	-	+	+	-	+
a	Ferric chloride test	+	+	-	+	+	+	+	+	-
b.	Alkaline reagent test	+	+	+	+	+	+	+	+	+
c.	Lead acetate test	+	+	-	+	+	-	+	+	-
6.	Test for glycoisides									
a	Keller killiani Test	+	-	-	=	-	-	+	-	-
b	Bromine water test	+	+	-	+	+	-	+	+	-
7.	Test for Alkaloids Hager's Test	+	+	+	+	+	+	+	+	+
8.	Test for tannins ferric chloride test	+	-	+	+	-	+	+	-	+
9.	Test for protein Bivret test	+	+	+	+	+	+	+	+	+
10.	Test for free amino acids ninhydrin test	-	-	+	-	-	+	-	-	+
11-	Test for oils and fats paper test	+	-	+	+	-	+	+	-	+

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