Phytochemical investigation of leaves of *Hypericum* ***oblongifolium***

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Abstract- Since primitive times, humans have been using plants for their essential requirements such as food and medicine. These plants have been used in traditional medicine in order to cure and prevent various human disorders. The important advantage for therapeutic uses of the plants includes their safety, effectiveness, economic feasibility, and ease of availability. In this paper ***Hypericum oblongifolium*** **leaves** extract was studied. For phyto-constituents five separate solvents (150 ml of each) namely methanol, ethanol, chloroform, ethyl acetate and deionized water were used to obtain extracts from plant material. The extracts were subjected to qualitative phytochemical screening using standard procedure. Phyto-chemical screening reveals the presences of flavonoids, anthraquinones, poly-phenols tannins, alkaloids, steroids saponins, glycosides and terpenoids.

Key Words: ***Hypericum oblongifolium*****, Phyto-constituent,** Anthraquinones, Therapeutics uses and Phytochemical Screening.

Introduction

Traditionally, medicinal plants are good sources of different active constituents. For the treatment of various diseased conditions, diverse species of medicinal plants are used due to the presence of the active chemicals. Prolonged use of the herbal plant as medicine determine its effectiveness and value for future. Various herbal products are used as medicine due to the significant effect on patient health, as it depends upon its popularity and availability[1-3]. From the time immemorial, the *Hypericum* species have been used in traditional therapy to treat various complaints. *Hypericum* , a large genus of herbs and shrubs, grows widely in temperate regions throughout the globe. These plants are the richest sources of flavones and xanthones[4]. *Hypericum ceranuum* (more accurately known as ***Hypericum oblongifolium*****,** belongingg to family *Hypericaceae* is an evergreen shrub native to the Himalayan region and the Khasia Hills. Leaves, flowers and stems have been reported for medicinal activity. It is traditionally found that they had been reported for treating respiratory disease, gastric ulcer, snake bite, wound, boils, *etc*. The plant has also been reported for various pharmaco-

logical aspects as anti-oxidant, anti-inflammatory, anti-pyretic activity. Chemo-taxonomically, it is prized for specialized metabolites like xanthones, flavonoids, and phloroglucinols, showing significant antioxidant and anti-inflammatory properties. The present paper deals with phytochemical screening of different extracts of leaves of ***Hypericum oblongifolium*.**

Material and methods

Collection of plant material- The plant material was collected from the forest of Adwani, Pauri Garhwal, Uttarakhand, India during September, 2025 and identified with the help of expert Taxonomist. The collected plant leaves were washed out in running tap water to remove the mud and microorganisms, shade dried for 15 days and chopped into small pieces and further dried for another 15 days. After then grounded into coarse powder using the household grinder and stored in air tight container till further use.

Chemicals and reagents- Iodine crystals (99%), Chloroform (99%), Sulphuric acid (98%), Hydrochloric acid (35%) (Himedia), Methanol (99%), Ethlye acetate (99%), Ethanol (99%) (MERK), Potassium iodide (99%), Ammonia solution (25%), Ferric chloride (98%), Lead acetate (99%) (Fisher scientific), Deionized distilled water(DI water) (milli Q), Benedict's quantitative reagent (Himedia), freshly prepared Wagner's reagent obtained by dissolving 6 gms of potassium iodide and 2 gms of iodine crystals. Similarly, the Ferric chloride solution was prepared by dissolving 2 gm of Ferric chloride in 50 ml DI water.

Preparation of root extracts- 5 gm of prepared powder was extracted via five separate solvents (150 ml of each) namely Methanol, Ethanol, Chloroform, Ethyl acetate and DI water. Each of the extract was accomplished through magnetic stirring at the temperature 60 - 75° C for 1 hour. Further the extracts were filtered with the help of Whatman filter paper no. 42 (Whatman International). All extracts were preserved in refrigerator till further use.

Phytochemical screening- Each of the prepared extract was treated as per the standard procedures to identify phytochemical components.

1) **Screeningof the tannins (Ferric chloride test)-** In a test tube holding 2 ml of the prepared extract was treated with 4-5 drops of freshly prepared ferric chloride solution. Brownish green layer confirmed the presence of tannins[5].
2) **Screening of the alkaloids (Wagner's test)-** A test tube filled with 2 ml of extract, 5-6 drops of Wagner's reagent were added slowly. The reddish-brown accelerate confirmed the acquaint of alkaloids[6].
3) **Screening of the steroids (Salkowski's Test)-** 2 ml of chloroform was mixed in 2 ml of extract; further similar volume of concentrated H_2SO_4 was added. The top layer revolve red and bottom layer revolve yellow with green glare, confirmed the presence of steroids[7].
4) **Screening of the saponins-** To identify the existence of saponins, 2ml of extract liquefyin 2 ml of Benedict's reagent. Blue –black

acquaint indicates the presence of saponins[8].

5) **Screening of the cardiac glycosides-** To identify the presence of cardiac glycosides, 2 ml of extract liquified with 2ml of chloroform in a test tube, after that added 1 ml of sulphuric acid. Appearance of deep reddish brown colour confirmed the presence of cardiac glycosides[9].

6) **Screening of the flavonoids (Lead acetate solution Test)-** 2 ml of extract liquefied with 2 ml of 10 percent lead acetate. Yellowish green colour confirmed the presence of flavonoids[10].

7) **Screening of the anthraquinones-** Firstly, 1 ml of extract simmers with10 percent of HCL for few moments by water bath process. Upon cooling to the room temperature, the same amount of chloroform and few drops of Ammonia solution (10%) were added in it. A rose pink colour confirmed the presence of anthraquinones[11]**.**

8) **Phenol screening (ferric chloride test)-** To identify the existence of phenols, 1 ml of extract and 2 ml Millipore water combined in a test tube than few drops of 10 percent of ferric chloride in it. Appearance of blue or green colour indicates presence of phenols[12].

9) **Examination for Terpenoids (Salkowski's Test)-** 2ml of extract is liquefied with 2ml of chloroform after that few drops of sulphuric acid consciously added to it. Presence of reddish brown colour indicated the presence of terpenoids[13].

Table-1 Phytochemical examination of *Berberis asiatica* **Roots**

Phytochemicals	Methanol extract	Ethanol extract	Chloroform extract	Ethyl acetate extract	Aqueous extract
Tannins	+	+	+	-	+
Alkaloids	+	_	_	_	+
Steroids	_	_	_	_	_
Saponins	+	+	_	_	_
Cardiac glycosides	_	_	_	_	_
Flavonoids	_	_	_	+	_
Anthraquinones	_	_	_	_	_
Phenols	+	+	+	+	+
Terpenoids	_	_	_	_	_

+ component is present ; - component is absent

Results and Discussion

The screening was accomplished with five types of extraction solvents on *Berberis asiatica* root powder. The presence of vital components having significant therapeutic values has been confirmed. The outcome is summarized in **Table-1.** The screening process shows dissimilar results in different types of extraction solvents. The tannins are absent only in ethyl acetate extract. Alkaloids present in methanol and water extracts. Saponins presence was found in methanol and ethanol extracts. Flavonoids are present only in ethyl acetate extract. Phenols are present in all selected solvents. Steroids, cardiac glycosides and anthraquinones were absent in all the extracts and terpenoids were present in both MeOH and EtOH extracts.

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Disclaimer Statement

Authors declare that no competing interest exists. The products used for this research are commonly used products in research. There is no conflict of interest between authors and producers of the product.

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