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Investigation of Phytochemical in *Euphorbia heterophylla* and *Euphorbia rothiana*

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Abstract— *The genus Euphorbia attracted the attention of many researchers as it is poorly studied. Euphorbia heterophyla and Euphorbia rothiana were selected and aimed to investigate the presence of phytochemicals screenings in leaf and stem. Aqueous, Acetone and Methanol Solvents were used for phytochemical analysis. The phytochemical analysis reveals the presence of phenolic compound in leaf and stem of the plants in all extracts and flavonoid using aqueous and methanol extracts. Our findings provides evidence, that aqueous and organic solvent extracts of these plants contain medicinally important bioactive compounds.*

Keywords— ***Euphorbia heterophylla, Euphorbia rothiana, Phytochemicals screening.***

I. INTRODUCTION

The Genus *Euphorbia* attracted the attention of many researchers as are poorly studied. *Euphorbia heterophylla* and *Euphorbia rothiana* belongs to family Euphorbiaceae, a big family comprising 300 genera and more than 7500 species ranging from lianas, shrubs and trees and distributed in many habitats[1].

Phytomedicines can be obtained from barks, leaves, flowers, roots , fruit, seeds. Knowledge of the chemical constituents will be valuable for synthesis of complex chemical substances [2].

Medicinal plants contain some organic compounds which provide definite physiological action on the human body and these bioactive substances include tannins, alkaloids, carbohydrates, terpenoids, steroids and flavonoids [3]. These compounds are synthesized by primary or rather secondary metabolism of living organisms. Secondary metabolites are chemically and taxonomically extremely diverse compounds with obscure function. They are widely used in the human therapy, veterinary, agriculture, scientific research and countless other areas [4].

The present study was undertaken to evaluate the phytochemical analysis of *Euphorbia heterophylla* and *Euphorbia rothiana*, stem and leaves.

II. MATERIALS AND METHODS

Collection of plant material

Fresh plant material of *Euphorbia heterophylla* and *Euphorbia rothiana* were collected from different regions of Washim district, Maharashtra, India. It commonly occur in cultivated land, along with roadside, Shady & moist places. plant material washed under running tap Water 2-3 times to remove soil particles and dust. the plant material were shaded for 12 days. After drying plant materials grinded into fine powder using mechanical blender and then transfer into airtight Container with proper labeling for further use.

Preparations of solvent Extracts

Stem and leaves of the plant samples were thoroughly washed with running tap water 2-3 times and then finally washed with distilled water followed by shade-dried for seven days and then dried in an oven below 50ºC. The dried plant materials were then powdered using mixer and grinder. 30g of plant powder were extracted with 100ml of

aqueous, acetone and methanol. After 24 hours, it was filtered through a filter paper, filtrate was collected. Test can be Conducted then and there it self after Collection or Can be stored in refrigerator for Conducting test later.

Phytochemical screening

Extracts of stem and leaves of *Euphorbia heterophylla* and *Euphorbia rothiana* using aqueous, acetone and methanol were subjected to various chemical tests in order to determine the secondary plant constituents: (5-9).

Test for Alkaloids

Mayer's test

A few drop of Mayer's reagents was added the Turbidity of the resulting precipitate indicates positive test for alkaloids.

Test for Tannins

A few chops of 0.1% ferric chloride was added and observed blackish-blue or brownish green Coloration indicates the Presence of Tannins.

Test for saponins

Extract was mixed with 5 ml of distilled Water in a test tube and then it was shaken vigorously, formation of stable foam indicates presence of Saponins.

Test for Flavonoids

Extract were treated with few drops of lead acetate solution yellow Coloration indicates. The presence of flavonoids.

Test for phenol

Crude Extract were treated with 3-4 drops of ferric chloride solution. bluish black or blue green colour indicate positive test for phenol.

Test for Terpenoids

(Salkowski test)

Extract was mixed in 2 ml of chloroform and concentrated H_2SO4 (3ml) was carefully added to form a layer. A radish brow coloration of thin inter face was formed it indicates positive test for terpenoids.

Test for amino acids

Ninhydrin test

Crude extract when boiled With 2 ml of 0.2% Solution of Ninhydrin Violet color indicates the presence of amino acids.

Test for Carbohydrates

Benedict's test

2 ml of Benedict's reagent added and heated on boiling Water bath for 2 min. reddish brown precipitate indicates the presence of Carbohydrates.

Test for Glycosides

To known volume of extract 1 ml of distilled Water added and aqueous solution of NaOH was added formation of yellow color indicates positive test for Glycosides.

III. RESULTS AND DISCUSSION

Phytochemical analysis of aqueous, acetone and methanol extract of *Euphorbia heterophylla* and *Euphorbia rothiana* shows positive test for tannin, phenol and glycoside and negative test for amino acids. Terpenoids are only present in stem of *Euphorbia heterophylla*. The results of phytochemical contents stem and leaf in Aqueous, Acetone and Methanol of *Euphorbia heterophylla* and *Euphorbia rothiana* are reported in Table 1, Table-2 and Table-3, Table 4, respectively.

Table 1: Phytochemical analysis of stem of Euphorbia heterophylla

Test	Aqueous	Acetone	Methanol
Alkaloid	+	+	-
Tannin	+	+	+
Saponin	+	+	-
Flavonoid	+	+	+
Phenol	+	+	+
Terpenoids	+	+	+
Amino acid	-	-	-
Carbohydrate	-	-	-
Glycoside	+	+	+

Table 2: Phytochemical analysis of leaf of Euphorbia heterophylla

Test	Aqueous	Acetone	Methanol
Alkaloid	-	+	-
Tannin	+	+	+
Saponin	+	-	-
Flavonoid	+	+	-
Phenol	+	+	+
Terpenoids	-	-	-
Amino acid	-	-	-
Carbohydrate	+	-	-
Glycoside	+	+	+

Table 3: Phytochemical analysis of stem of Euphorbia rothiana

Test	Aqueous	Acetone	Methanol
Alkaloid	-	-	-
Tannin	+	+	+
Saponin	+	-	+
Flavonoid	+	+	+
Phenol	+	+	+
Terpenoids	-	-	-
Amino acid	-	-	-
Carbohydrate	-	-	-
Glycoside	+	+	+

Table 4: Phytochemical analysis of leaf of Euphorbia rothiana

Test	Aqueous	Acetone	Methanol
Alkaloid	+	-	-
Tannin	+	+	+
Saponin	+	-	-
Flavonoid	+	+	-
Phenol	+	+	+
Terpenoids	-	-	-
Amino acid	-	-	-
Carbohydrate	-	-	-
Glycoside	+	+	+

IV. CONCLUSION

The *Euphorbia heterophylla* and *Euphorbia rothiana* this plants are source of secondary metabolites and the solvent choice is very important for extraction of Phytochemical from plants. Medicinal plants are helpful for discovering and Manufacturing of new drugs. The research on *Euphorbia heterophylla* and *Euphorbia rothiana* plants which can be medicinally important.

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