



Preliminary Phytochemical Evaluation of the Leaves of *Leucas zeylanica*

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ABSTRACT

Leucas zeylanica Linn belongs to the family Lamiaceae it is well known medicinal plant, traditionally Used against Several diseased conditions. The leaves of *Leucas zeylanica* are dried and powdered. Extraction was performed by using two different solvents like acetone and ethanol by soxhalation method. In this present study, the preliminary phytochemical screening was performed for two extracts it indicate the presences of alkaloids, carbohydrates, glycosides, flavonoids.

Keywords: *Leucas zeylanica*, Phytochemistry, Formulation.

INTRODUCTION

Leucas zeylanica, belong to the family lamiaceae commonly called as ceylon slitwort [1]. Synonyms include *Leucas bancana* Miq, *phlomis zeylanica* Linn, *spermacoce denticulate* Walp [2,3]. It is a small, terrestrial, herbaceous, annual erect plant or sometimes tufted, hispid and aromatic plant growing to a height of up to 120 cm, stipules absent. Stem is green in color; it is a quadra angular plant. Leaves are elliptic in shape and green in color which occur opposite sides of stems and large in number. These are subsellile leaves which are liner lanceolate or elliptic lanceolate which is 2.5 to 7.5 cm long. Not lobed or divided, blunt at the tip, Obfuse, entire or cerrulate, gradular hispid and coarsely dentate at the margin. Roots are mainly tap root and fibrous. Which is white or brown in colour? Whorls of many flowers are bisexual, sessile, subsessile, usually in terminal whorls is 1 to 2 cm in diameter, grouped together in an axillary. coralla is white in colour and 2 cm long. Calyx is 5 to 7 mm long obliquely turbient, with minute teeth, apex, acute, base acute, pinnately veined, erect or spreading horizontally. It is reproduced by seed or pollinated by bees, moths and flies [4,5].

Plants exist in various habitats, a weed of sunny dry localities, often on sandy soils, paddy dams, waste places, road-sides from the low land upto 1700 m altitude. Widely occurs throughout South East Asia [6]. The leaves are used as anti helminitic, diaphoretic, sedative, stimulant, vulnerarya. They are applied topically to heal wounds [7,8]. The leaves are used as apoultice to treat itch, head ache, vertigo, scabies. The sap of the leaves is used for sores of eyes and nostrils. Leaves and flowers are used for jaundice & used in treatment of burning and urination in the frame of traditional medicine [9].

METHODS AND MATERIALS

Collection of plant material

The leaves of *Leucas zeylanica* were collected from local areas sainagar, Karimnagar and are authenticated by the botanist and No is BSI/DRC/16-17/Tech./968.

Preparation of plant extracts

Acetone and ethanolic extract

The dried powder of *Leucas zeylanica* leaves were subjected to soxhalation method at suitable temperature. Acetone and ethanol are used as solvents for extraction. 50 gms of powder of leaves is dissolved in 200 ml of solvent. Soxhalation method was carried out for about 6 hrs for each solvent & the ethanolic & acetone extract obtained were evaporated and dried in dessicator.

Phytochemical Analysis

Extracts were tested for identification of chemical constituents like amino acids, carbohydrates, proteins, steroids, glycosides, flavonoids, tannins, alkaloids. Following methods were used [10].

A. Test for Carbohydrates

Molish's test

To 2 ml of extract, add few drops of alpha-naphthol solution in shake and add conc. sulphuric acid from sides of the test tube. Violet ring is formed at the junction of two liquids.

Fehling's test

Mix 1 ml of fehling's A and fehling's B solutions, boil for one minute. Add 1 ml of test solution. Heat in boiling water bath for 5-10 min. first a yellow, then brick red ppt is observed.

Benedict's test

Mix equal volume of Benedict's reagent and test solution in test tube. Heat in boiling water bath for 5 min. solution appears green, yellow or red depending on amount of reducing sugar present in test solution.

B. Tests for Glycosides

Killer Killani test

To 2 ml of extract, add glacial acetic acid, one 5% FeCl₃ and conc. Sulphuric acid. Reddish brown color appears at junction of the two liquids layers.

Borntrager's test

To 3 ml of extract, add sulphuric acid. Boil and filter. To cold filtrate, add equal volume benzene. Shake well separate the organic solvent. Add ammonia, ammonical layer turns to pink or red.

Test for protein and amino acids

Biuret test

To 3 ml of test solution add 4% of NAOH and few drops of 1% CuSO₄ solution, violet or pink colour is appears.

Million's test

Mix 3 ml of test solution with 5 ml of million's reagent, white ppt appers, warm the ppt turns brick red or the ppt dissolves giving red colored solution.

Xantho proteic test

Mix 3 ml of test solution with 1 ml of sulphuric acid, white ppt is formed, boil, ppt turns yellow, Add NH₄OH, ppt turns orange.

Ninhydrin test

Heat 3 ml of test solution and 3 drops 5% ninhydrin solution in boiling water bath 10 min. purple or bluish color appears.

Test for steroid**Salkowski reaction**

To 2 ml of extract, add 2 ml of chloroform and 2 ml conc. H₂SO₄, Shake well. Chloroform layer appears red and acid layer shows greenish yellow fluorescence.

Liebermann-Burchard reaction

Mix 2 ml of extract with chloroform, add 1-2 ml of acetic anhydride and 2 drops conc. H₂SO₄ from the side of test tube. First red, then blue and finally green color appears.

Test for flavonoids**Shinoda test**

A. To dry powder or extract, add 5 ml 95% ethanol, few drops conc. HCl and 0.5 g magnesium turnings, pink color observed.

B. To small of residue add lead acetate solution yellow ppt is formed.

C. Addition of increasing amount of sodium hydroxide to the residue shows yellow coloration which decolourise after addition of acid.

Test for Alkaloids

Evaporate the aqueous alcoholic and chloroform extracts separately. To residue, add dilute HCl. Shake well and filter with filtrate, Perform following tests

A. Dragendroff's test

To 2-3 ml filtrate, add few drops of dragendroff's reagent. Orange brown ppt is formed.

Mayer's test

To 2-3 ml filtrate with Mayer's reagent, gives cream colored ppt.

Hager's test

To 2-3 ml filtrate with Hager's reagent which gives yellow colored ppt.

Wagner's test

To 2-3 ml filtrate with Wagner's reagent gives reddish brown ppt.

Test for tannins and phenolic compounds

To 2-3 ml of aqueous and alcoholic extract, add few drops of following reagents:

A. 5% FeCl₃ solution: deep blue color.

B. lead acetate solution: white ppt.

C. gelatin solution: white ppt.

D. acetic acid solution: red color solution.

E. potassium dichromate: red ppt.

F. dilute iodine solution: transient red color.

G. dilute HNO₃: reddish to yellow color

RESULT AND DISCUSSION

The curative property of medicinal plants is due to the presence of chemical constituents like alkaloids, glycosides, amino acids, flavonoids, steroids.

In the present study, two different solvent extracts were subjected to phytochemical tests have revealed that presence of alkaloids, glycosides, flavonoids, tannins, carbohydrates, steroids and proteins and amino acids are absent in both acetone and ethanolic extract.

Table 1: The results of preliminary phytochemical analysis

Chemical tests	Acetone	Ethanol
I. Alkaloids		
Mayer's test	-	+
Hager's test	+	-
Wagner's test	-	+
Dragondroff's test	-	-
II. Flavanoids		
Alkaline	+	+
Lead acetate	+	-
III. Glycosides		
Borntrager's test	-	-
Killer killani	+	+
IV. Carbohydrates		
Molish test	+	+
Benedict test	+	+
Fehling's test	+	+
V. Proteins And Amino Acids		
Biuret test	-	-
Millon's test	-	-
Xanthoprotic's test	-	-
Nin-hydrin test	-	-
VI. Steroids		
Salkowski test	+	+
Lieberman burchard test	+	-
VII. Tannins And Phenolic Compounds		
Gelatin solution	+	+
Potassium dichromate	-	-
Iodine solution	+	+
Fec13	-	-
Dilute HNO3	-	-
Acetic acid solution	+	-

DISCUSSION

Secondary metabolites which exhibits physiological activity. In addition to carbohydrates and proteins utilized by human as food source. Phytochemical tests may be useful in the identification of active principle. These tests facilitate their quantitative estimation and qualitative of pharmacological active compounds. Phytochemical constituents in the plant extract are known to be biologically active compounds which are responsible for the antioxidant, antifungal, antimicrobial.

CONCLUSION

The phytoconstituents present in the plants is used for producing useful drugs for human use & useful for treating different diseases. In the investigation, we have found that most of the biologically active chemical constituents

were present in the acetone and ethanolic extract of *Leucas zeylanica* leaves. It is beneficial for further investigation. A medicinal property of *Leucas zeylanica* is due to phytochemicals.

REFERENCES

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