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Phytochemical studies of aerial parts of the plant *Leucas lavandulaefolia*

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ABSTRACT

Phytochemical studies of areal parts of Leucas lavandulaefolia (Family:Labiatae) revels the presence of Triterpenoids, Steroids, Fatty acid, Flavonoids and absence of Alkaloids, Carbohydrates, Glycosides , Resins, Saponins and Tannins .

INTRODUCTION

Leucas lavandulaefolia Rees (family Labiatae) is a herbaceous annual weed found in pastures and waste land throughout India. It has a strong flavour and is reputed for its use as sedative, vermifuge, stomachic, dermatosis and is also useful in the treatment of migraine[1-3]. A literature survey revealed that the presence of Acacetin and Chrysoeriol from this plant has been reported[4]. In continuation of our research[5,6], we report in this paper, the anti-inflammatory activity of the aerial parts of *Leucas lavandulaefolia* to justify its folkloric use.

MATERIALS AND METHODS

The Stem bark of *Michelia champaca* collected from local area of Mangalore district,Karnataka, India During December 2008. The stem bark was authenticated by Dr. Noeline J.Pinto, Professor and Head of Botany, Dept St.Agnes College Mangalore.

Preparation of extracts.
The aerial Parts *Leucas lavandulaefolia* were sun dried after washing and then grinded to a coarse powder in a grinder. The coarse powder form of aerial Parts *Leucas lavandulaefolia* will be exhaustively extracted by soxhlet extractor, using various solvent.

The extract so obtained were subjected to solvent evaporation by vacuum distillation and dried in desiccators. The dried material were tested for different phytoconstituents like Alkaloids , Carbohydrates, Flavanoids, Glycosides , Resins, Saponins , Tannins by standard methods [7].

Reagents
All reagents were of analytical grade and obtained from S.D Fine Chemicals Ltd.,Mumbai

Methods
1. Alkaloids
(a) Dragendorff's test
To 2 mg of the ethanolic extract 5 ml of distilled water was added, 2M Hydrochloric acid was added until an acid reaction occurs. To this 1 ml of Dragendorff's reagent was added. Formation of orange or orange red precipitate indicates the presence of alkaloids.

(b) Hager's test
To 2 mg of the ethanolic extract taken in a test tube, a few drops of Hager's reagent was added. Formation of yellow ppt confirms the presence of alkaloids.

c) Wagner's test
2 mg of ethanolic extract was acidified with 1.5 % v/v of hydrochloric acid and a few drops of Wagner's reagent was added. A yellow or brown ppt. indicates the presence of alkaloids.

(d) Mayer's test
To a few drops of the Mayer's reagent, 2 mg of ethanolic extract was added. Formation of white or pale yellow precipitate. Indicates the presence of alkaloids.

2. Carbohydrates
(a) Anthrone test
2 mg of ethanolic extract was shaken with 10ml of water, filtered and the filtrate was concentrated. To this 2ml of anthrone reagent solution was added. Formation of green or blue colour indicates the presence of carbohydrates.

(b) Benedict's test
2 mg of ethanolic extract was shaken with 10ml of water, filtered and the filtrate was concentrated. To this 5 ml of Benedict's solution was added and boiled for 5 minutes. Formation of brick red coloured ppt indicates the presence of carbohydrates.

(c) Fehling's test
2 mg of ethanolic extract was shaken with 10ml of water, filtered and the filtrate was concentrated. To this 1 ml mixture of equal parts of Fehling's solution A and B were added and boiled for few minutes. Formation of red or brick red coloured precipitate indicates the presence of reducing sugar.

(d) Molisch's test
2 mg of ethanolic extract was shaken with 10ml of water, filtered and the filtrate was concentrated. To this 2 drops of freshly prepared 20% alcoholic solution of α- naphthol was added. 2 ml of conc. sulphuric acid was added so as to form a layer below the mixture. Red-violet ring appear, indicating the presence of carbohydrates which disappear on the addition of excess of alkali.

3. Flavonoids

(a) Shinoda's test

2 mg of ethanolic extract was dissolved in 5ml of ethanol and to this 10 drops of dilute hydrochloric acid followed by a small piece of magnesium were added. Formation of pink, reddish or brown colour indicates the presence of flavonoids.

4. Glycosides

Molisch's test

2 mg of ethanolic extract was shaken with 10ml of water, filtered and the filtrate was concentrated. To this 2-3 drops of Molisch's reagent was added, mixed and 2ml of concentrated sulfuric acid was added carefully through the side of the test tube. Reddish violet ring appear, indicating the presence of glycosides.

5. Triterpenoids

Liebermann - Burchard's test

2 mg of dry extract was dissolved in acetic anhydride, heated to boiling, cooled and then 1 ml of concentrated sulphuric acid was added along the sides of the test tube. Formation of a pink colour indicates the presence of triterpenoids.

6. Resins

1 ml of ethanolic extract was dissolved in acetone and the solution was poured in distilled water. Turbidity indicates the presence of resins.

7. Saponins

In a test tube containing about 5 ml of an ethanolic extract, a drop of sodium bicarbonate solution was added. The test tube was shaken vigorously and left for 3 minutes. Formation of honeycomb like froth indicates the presence of saponins.

8. Steroids

(a) Liebermann-Burchard's test

2 mg of dry extract was dissolved in acetic anhydride, heated to boiling, cooled and then 1 ml of concentrated sulphuric acid was added along the sides of the test tube. Formation of green colour indicates the presence of steroids.

(b) Salkowski reaction

2 mg of dry extract was shaken with chloroform, to the chloroform layer sulphuric acid was added slowly by the sides of test tube. Formation of red colour indicated the presence of steroids.

9. Tannins

To 1-2 ml of the ethanolic extract, few drops of 5% w/v $FeCl_3$ solution was added. A green colour indicated the presence of gallotannins, while brown colour indicates the presence of pseudotannins.

RESULTS

The detailed result of the Phytochemical tests carried out on aerial parts of *Leucas lavandulaefolia* are presented in Table 1. In this present invetigaion the phytochemical test reveals the presence of the Triterpenoids and Steroids in petroleum ether extract, Flavonoids in ethyl acetate extract. Alkaloids , Carbohydrates, Glycosides , Resins, Saponins, Tanins are absent in all the five extract

Table -1: Phytochemical screening of aerial parts of *Leucas lavandulaefolia*.

Name of extract	Petroleum ether(60-80^0)	Diethyl ether	Ethyl acetate	Methanol	Water
Alkaloids	-	-	-	-	-
Carbohydrates	-	-	-	-	-
Flavanoids	-	-	+ve	-	-
Glycosides	-	-	-	-	-
Triterpenoids	+ve	-	-	-	-
Resins	-	-	-	-	-
Saponins	-	-	-	-	-
Steroids	+ve	-	-		-
Tannins	-	-	-	-	-

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