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Phytochemical Investigation of Ethnomedicinal *Spermacoce ocymoides* Roots

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ABSTRACT

The roots of *S. ocymoides* were exhaustively extracted with versatile solvents to get crude extracts, and were subjected to phytochemical analysis, UV and GCMS spectral data. The steroids and reducing sugars are present only in methanolic extract, whereas the phenolic compounds present almost all the extracts except the benzene extract; and the tannins present in benzene and methanolic extracts. Previous literature reveals that there are no tannins in aerial parts of *S. ocymoides*. In this present work tannins were found in roots of *S. ocymoides*. Both UV and GCMS analysis shows that there is mixture of components. With this view may helpful to search any new compounds from this part of the plant could be isolated hereafter, and the presence of tannins from *S. ocymoides* roots may helpful to future investigations of this plant.

Keywords: *S. ocymoides* roots, Phytochemistry, GCMS, UV analysis.

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1. Introduction

Throughout history, natural products from plants have played major, sustaining roles in the lives of humans, especially for food sources and for medicinal products [1] of the majority of the drugs introduced to Western medicine are derived mostly from natural products and about 25% of commonly used prescription drugs are derived from traditionally used medicinal plants [2]. In addition, there are myriad of plant extracts and plant materials which are employed commercially in various parts of the world. For approximately 85% of the world's population, it is these plant materials which are a primary source of health care [3].

In this present work we have report the preliminary phytochemical studies on traditional medicinal plant *Spermacoce ocymoides*. The leaves of this plant have antibacterial and antifungal activities are they also used to treat dysentery and diarrhea [4, 5]. The literatures revealed that there is lack information about the phytochemical evaluation of *S. ocymoides*.⁶ With this objective we have investigate the presence of chemical constituents in the roots of *S. ocymoides* and the results of this investigation are discussed here with. The roots of *S. ocymoides* were exhaustively extracted with different solvents. After the extraction, the solvent was removed to get crude extracts and the crude extracts from different solvents were analyzed for primary phytochemical tests (Table 1) in order to find out the nature of compounds present. The resulting extracts were analyzed by UV and GCMS spectroscopic data.

2. Materials and methods

2.1. Collection of Plant material

The roots of *S. ocymoides* were collected from the residential areas of Alwarkurichi during December, 2011.

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2.2. Extraction of roots of *S. ocymoides*

The roots of *S. ocymoides* were cut into small species and were exhaustively extracted with different solvents viz pet ether, benzene, chloroform and methanol under reflux condition for about six hours. The extract was filtered and the solvent was removed *in vacuo* to get crude extract. Then this pasty mass was washed with hexane to remove chlorophylls. After the removal of chlorophylls, the resulting pasty mass was subjected to phytochemical analysis, UV and GCMS spectral data.

2.3. Investigation of the extract

The crude extracts were viscous greenish pasty mass and was soluble in chloroform, acetone and ethanol. It was found to be heterogeneous on TLC, and the following color reactions were carried out in order to find out the nature of compounds present in the crude extracts.

2.4. Color reactions for *S. ocymoides* roots

The extracts can then dissolved in suitable solvent and carried out the color reactions. The following color reactions were carried out in order to find out the nature of compounds present in the crude extract.

2.4.1 Steroids (Salkowski test)

A few drops of extract were added with minimum amount of chloroform, three drops of acetic anhydride and two drops of sulphuric acid. Red color was obtained. Presence of steroids.

2.4.2 Triterpenoids

A few drops of the extract were treated with tin and thionyl chloride. No violet color was obtained indicate the absence of triterpenoids.

2.4.3 Carbohydrate (Molish Test)

A few drops of the extract was treated with Molish reagent (α -Naphthol in alcohol) and drops of concentrated sulphuric acid was added. Purple color was obtained. This confirms the presence of carbohydrates.

2.4.4 Reaction with Fehling solution

A few drops of the extract was heated with Fehling A and B.

A red brown precipitate was formed which confirms the presence of carbohydrates.

2.4.5 Reducing sugar

A few drops of extract was added with equal volume of Fehling A & B and heated on water bath. Red precipitate was obtained. Presence of a reducing sugar.

2.4.6 Alkaloids

A few drops of extract were treated with acetic acid and few drops of Dragendroff's reagent. No precipitate was obtained. Absence of alkaloids.

2.4.7 Phenolic group

A few drop of the extract was dissolved in alcohol and neutral ferric chloride solution were added. A violet color was obtained. Presence of phenolic group.

2.4.8 Saponins

A few drops of the extract was treated with water and shake well. No foamy layer was obtained which confirms the absence of saponins.

2.4.9 Xanthoproteins

A few drops of the extract were treated with con. Nitric acid and a drop of ammonia. No red orange color was obtained. Absence of xanthoproteins.

2.4.10 Tannin

A few drops of the extract were treated with basic lead acetate. The formation of white precipitate indicates the presence of tannins.

2.4.11 Flavonoids (Shinoda test)

A few drops of the extract were heated with magnesium and concentrated hydrochloric acid which gave no red color. This confirms the absence of flavonoids.

2.4.12 Acid

Few drops of the extract were treated with a saturated solution of sodium bicarbonate. Brisk effervescence was obtained. Presence of acids.

Table 1: Primary Phytochemical Analysis of *S. ocymoides* roots

Sl. No.	Compound	pet ether extract	benzene extract	chloroform extract	methanol extract
1	Steroids	-	-	-	+
2	Triterpenoids	-	-	-	-
3	Reducing sugar	-	-	-	+
4	Alkaloids	-	-	-	-
5	Phenolic compound	+	-	+	+
6	Saponin	-	-	-	-
7	Xanthoproteins	-	-	-	-
8	Tannins	-	+	-	+
9	Flavonoids	-	-	-	-
10	Aromatic acids	-	-	-	-

Note: + = present, - = absent

3. Results and Discussion

The steroids and reducing sugars are present only in methanolic extract, whereas the phenolic compounds present almost all the extract except the benzene extract; and the tannins present in benzene and methanolic extract. Previous literature reveals that there are no tannins in aerial parts of *S. ocymoides*. In this present work tannins were found in roots of *S. ocymoides*. All the extracts were further analyzed for UV spectroscopic data whereas only the methanol extract was examined for GCMS data. Both UV and GCMS analysis shows that there is mixture of components.

4. Conclusion

With this above view may helpful to search any new compounds from this part of the plant could be isolated hereafter, and the presence of tannins from *S. ocymoides* roots may helpful to future investigations of this plant.

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