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Research Article

PHYTOCHEMICAL PROFILE OF THREE SELECTED PLANTS OF *ARAUCARIA COLUMNARIS, ARAUCARIA HETEROPHYLLA, OCIMUM TENUIFLORUM*

*** Ponnam Surya Pavani, K Prudhvi Raj, A Sarany, A Ravi Kumar**
*Department of Pharmacognosy, Bapatla College of Pharmacy, Bapatla, 522101 Andhra Pradesh ,India

*Corresponding Author: Ponnam Surya Pavani; Email: pavani.pharmacy862@gmail.com

Abstract: A Phytochemical profile of three selected plant species Aracuria columnaris, A.heterophylla and ocimum tenuiflorum were carried out .Crude dry powder analysis ,ash value ,solubility ,extractive value ,fluorescence analysis, qualitative analysis of photochemical and mineral contents of the chosen plants were studied using various solvents.
Key words: Photochemical profile, plant extracts, Araucaria columnaris, A.heterophylla, Ocimum tenuiflorum

INTRODUCTION

A Knowledge of the chemical constituents of plants is essential not only for the discovery of therapeutic agents, but also such information discloses the source of economic materials such as tannins, oils, gums, precursors for the synthesis of complex chemical substances of different values. In addition, the knowledge of the chemical constituents of plants would further be valuable in discovering the actual value of folkloric remedies. Several Phytochemical surveys have been carried out, including the random sampling approach, which involved some plant accessions collected from throughout the world. The major chemical substances of interest in these surveys have been the alkaloids and steroidal sapogenins, however, unsaturated sterols, triterprnoids, essential oils, etc,. have also been reported. The present study was undertaken to determine the biologically active compounds that contribute to the flavor, color and other characteristic of the chosen plants. A few important plants are The African tulip tree (Spathodea campanulata), Calabash tree (Crescentia cujete), sausoga tree (Kigelia africana), trumpet creeper (Campsis radicans), cross vine (Bignonia capreolata), cat's claw (Dolichandra unguis-cati), trumpet tree(Tabebuia), jacaranda (Jacaranda), flowering willow (Chilopsis linearis), and Cape honeysuckle (Tecoma capensis). Phytochemical Profile of three plants Araucaria columnaris, A.heterophylla, Ocimum tenuiflorum were selected for the study.

MATERIALS AND METHODS

Collection of Plant Material and Extraction

Three plants Araucuria columnari, A.heterophylla, Ocimum tenuiflorum were autentified and collected from different parts of Andhra Pradesh . The air dried plant material was made into fine powder in Willey Mill. The crude dried powdered materials are separately extracted with ethanol and water to a small bulk order reduced pressure was suspended in water. Further fractioned with solvents like hexane, benzene, chloroform, methanol and water were subjected to chemical evaluation value of benzene, chloroform, hexane, water and ethanol soluble extractive values are also determined.

Phytochemical screening and Estimation of Chemcial Constituents Method

Alkaloid determination:

Around 5g of sample was weighed into a 250 ml beaker and 200 ml of 10% acetic acid in ethanol was added. The mixture was covered and allowed to stand for 4 hours. Then filtered and extract was concentrated on a water bath to one-quarter of the original volume. Concentrated ammonium hydroxide was added drop by drop to the extract until the precipitates completely dissolved. The whole solution was allowed to settle and the collected precipitates were washed dilute ammonium hydroxide and the filtered. The alkaloid residue was dried and weighed.

Tannin determination:

Around 500 mg of the sample was weighed into a 59 ml plastic bottle. To this, 50 ml of distilled water was added and shaken for 1 h in a mechanical shaker. This solution was filtered into a 50 ml volumetric flask and made ip o the mark. Then 5 ml of the filtered was pipette out into a test tube and mixed with 2 ml of 0.1 M. Fecl3 in 0.1 N. HCL and 0.008 M potassium ferrocyanide. The absorbance was measured at 420 nm within 10 min.

Saponin determination:

The samples were ground and 20 g of each were taken in a conical flask and 100 ml of 20% aqueous ethanol was added. The samples were heated over a hot water bath for 4 hours with continuous stirring .The mixture was filtered and the residue was re-extracted with another 200 ml of ethanol. The combined extracts were reduced to 40 ml over water bath at about 90 C. The concentrate was transferred into a 250ml separator funnel and 20 ml of diethyl ether was added and vigorously shaken. The aqueous layer was recovered while the ether was discarded. The purification process was repeated. Then 60 ml of n-butanol was added. The combined n-butanol extracts were washed twice with 10 ml of 5% aqueous sodium chloride. The remaining solution was heated in a water bath. After evaporation the samples were dried in an oven constant

weight and the saponin content was calculated as percentage.

Flavonoid determination:

About 10 g of the plant sample was extracted repeatedly with 100 ml of 80% aqueous methanol at room temperature. The whole solution was filtered through Whatman filter paper no. 42 (125 mm) and the filtrate was transferred to a crucible and evaporated to dryness over a water bath and weighed to a constant weight.

Determination of total phenolic compound:

The fat free sample was boiled with 50 ml of ether for extraction of the phenolic competent for 15 min. From this 5 ml of the extract was pipette in to a 50 ml flask, then 10 ml of distilled water was added. Then 2 ml of ammonium hydroxide solution and 5 ml of concentrated amyl alcohol were also added. The samples were made up to mark and left to react for 30 min for color development. This was measured at 505 nm in a spectrophotometer.

RESULTS AND DISSCUSSION

The Present study carried out on the three plant samples revealed the presence of medicinally active constituents. Table 1 presents the chemical composition of the Araucuria columnaris, A.heterophylla, Ocimum tenuiflorum

Table.1.Crude dried powder analysis of the chosen plants

Plant	Total ash	Water soluble ash	Alkalinity For water soluble ash	Acid Insoluble ash	**PH 1%** Aqueous solution	Loss on drying 110 C
A. columnari	NLT 7.05	NLT 2.21	0.14	NLT 0.56	6.7	NMT 5.8%w/w
A. heterophylla	NLT 6.88	NLT 2.32	0.17	NLT 0.53	6.5	NMT6%w/w
O. tenuiflorum	NLT 6.03	NlT1.31	0.29	NLT 0.61	5.9	NMT11%w/w

NLT=NOT LESS THAN; NMT=NOT MORE THAN

Though minerals such as sodium, magnesium ,chloride and sulphate are present in all the studied plant species but no traces of iron was found(Table 2)

Table-2:Mineral Compositions Of The Selected Plant Species

Plant	**Calcium**	**Sodium**	**Iron**	**Magnesium**	**Chloride**	**Sulphate**
A.columnaris	+	+	NT	+	+	+
A.heterophylla	+	+	NT	+	+	+
O.tenuiflorum	+	+	NT	_	+	+

NT=Not traceable

Crude of the test samples in five different extracts were analysed and presented in table 3

Table.3: Extractive value of the chosen plants in various solvents

Plant	**Benzene extractive values(%)**	**Chloroform extractive values (%)**	**Water soluble extractive values (%)**	**Ethanol soluble extractive values(%)**
A.columnaris	NMT 3.21499	NMT 3.49390	NMT 7.22448	NMT13.1931
A.heterophylla	NMT 8.22832	NMT 11.713216	NMT 13.8721	NMT 12.7122
O.tenuiflorum	NMT 4.07811	NMT 3.03087	NMT 10.53374	NMT 15.749

NMT: Not more than

Phytochemical screening of the three plants extracted in the following solvents; hexane, chloroform, ethanol and water were analyzed and presented in table 4.

Table.4. Qualitative analysis of chemical constituents of the selected plants under various solvents

Plant	**Extract**	**Saponin**	**Antraquinone**	**Flavanoid**	**Protein**	**Carbohydrate**	**Terpene**
A.columnaris	Hexane	_	_	++	_	_	++
	Benzene	_	_	++	_	_	++
	Chloroform	_	_	+++	_	_	_
	Ethanol	+	++	+++	++	++	_
	Water	+	_	_	++	+	_
A.heterophyll a	Benzene	_	_	+++	_	_	_
	Chloroform	_	_	+++	_	_	_
	Ethanol	++	+++	++	++	+	_
	Water	+	_	_	+	+++	_
	Hexane	_	_	_	_	_	++
O.tenuiflorum	Chloroform	_	+++	+++	_	_	_
	Ethanol	++	+++	++	+	+	++
	Water	+	_	_	++	+	_

CONCLUSION

The plants studied here can be seen as a potential source of useful drugs. Further studies are going on these plants in order to isolate, identify, characterized and elucidate the structure of the bioactive compounds.

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