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PHYTOCHEMICAL ANALISIS OF MEDICINAL PLANT EXTRACTS

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ABSTRACT

The Indian flora is extensively utilized as source of drugs mentioned in the traditional systems of medicine. During the last few decades there has been an increasing interest in the study of medicinal plants and their traditional use in different parts of India. Indian medicinal plants are widely used by all sections of the population and it has been estimated that over 7500 species of plants are used by several ethnic communities. India possesses more than 500 tribal communities and certain local communities in India practice herbal medicine to cure a variety of diseases and disorders. During the last few decades there has been an increasing interest in the study of medicinal plants and their traditional use in different parts of India. There are many reports on the use of plants in traditional healing by either tribal people or indigenous communities of India.

KEYWORDS: Phytochemicals, Phenols, Flavonoids, Steriods, Alkaloids and Tannins.

INTRODUCTION

Medicinal plants have been stated[15] to comprise about 8000 species and account for approximately 50% of all the higher flowering plant species of India. In other words, there are about 400 families of the flowering plants; at least 315 are represented by India. Medicinal properties of few such plants have been reported but a good number of plants still used by local folklore are yet to be explored. Ayurveda, Siddha and Unani systems of medicine provide good base for scientific exploration of medicinally important molecules from nature. The rediscovery of Ayurveda is a sense of redefining. Emerging concept of combining Ayurveda with advanced drug discovery programmed is globally acceptable. Traditional medicine has a long history of serving peoples all over the world. The ethno botany provides a rich resource for natural drug research and development. In recent years,

the use of traditional medicine information on plant research has again received considerable interest. The Western, use of such information has also come under increasing scrutiny and the national and indigenous rights on these resources have become acknowledged by most academic and industrial researchers. According to the World Health Organization (WHO), about three quarters of the world's population currently use herbs and other forms of traditional medicines to treat diseases.

MATERIAL AND METHODS

Collection of plant material: The medicinal plant *Millingtonia hortensis lin.* (In Telugu name was Boddumalli) was collected from the village area of Gudur, Mahabubabad District, Telangana State. It was identified and authenticated by Prof. V.S. Raju (Retd.), Department of Botany, Kakatiya University, Warangal. The plant was stored in the herbarium of the lab by allocating voucher number (RPU/ZOO/*MH*/2015).

Preparation of extracts: The fresh plant leaves were washed, shade dried and powdered using electric blender and stored in the air tight bottles.

The collected plant material leaves were dried in shade for about 15 days. The leaves were powdered with electrical grinder. The collected coarse powder then passed through No.20 mesh and the fine powder was used for the extraction.

Maceration technique was employed to prepare the extract from leaf powder of the plant. Solvents like methanol and aqueous were used to get the extract. 50g of powder was taken in Stoppard conical flasks; it was mixed with 250ml of solvent and allowed for 24hrs at room temperature with random shaking. Then the filtrate-I was collected and the marc dissolved in 250ml of solvent for 24 hrs and collected the filtrate-II. Then the filtrates (I&II) were subjected to distillation to get extracts and stored in well closed amber glass containers at refrigerator temperature prior to use.

PHYTOCHEMICAL ANALYSIS

1. Test for Alkaloids

The test is performed by the Hager's test. The extract is filtered from the diluted hydrochloric acid and filtered. The filter is then added by the saturated picric acid. Yellow colour precipitate formation indicatesthe alkaloids.[2]

2. Test for Anthraquinones

The test is done by the method Borntrager's test. 1 gr. of extract is mixed with 2 ml of benzene and allowed for filtration after shaking. 10ml of 1% ammonia was added to the filtrate. The mixture was shaken for the appearance of violet color at the lower of phase with which the presence of anthraquinones is confirmed. The violet color formation indicates anthraquinones in the extracts.[15]

3. Test for Flavonoids

Detection of flavonoids is done by the alkakline reagent test. The extracts were treated with the drops of NaOH solution, which forms of intense yellow colour and becomes colourless by the addition of dilute acid, which denotes the flavonoid presence.[2]

Another test is by the adding of few drops of 1% Aluminium solution to the filtrate of extract (0.5gr.) from 80% ethanol and petroleum ether, which results the formation of yellow colour indicates the presence of the flavanoids.[16]

Another test was done by the method of Shinoda test: the HCl added to the extract and Mg chip, which gave the orange/red/red crimson/ crimson magenta colour, which tells the presence of flavanoids.[13]

4. Test for Glycosides

1 gr. of extract was dissolved in ferric chloride containing (1 drop) glacial acetic acid (4 ml) solution. After that Conc. H_2 SO_4 (2ml) was added through the walls of test tube. Brown ring indication reveals the presence of glycosides Brown ring confirms the presence of glycosides.[15]

5. Test of Phenols

The extract added with 3 to 4 ml of $FeCl_3$. The formation of bluish black colour indicates the presence of phenols in the extract.[1]

6. Test for Saponins

The saponins presence test in the extract was done by taking of 1 gr. of extract in the test tube and shake the tube by adding water and warmed the tube, frothing in the tube indicates the presence of the saponins.[15] Frothing is not seen in the tube, the saponins are not there in the extract.

7. Test for Steroids

The present test for steroids is done by the method Liebermann – Burchard test Extract (2ml) was dissolved in 2ml of chloroform and 2ml of conc. H_2 SO_4 was added to it, which gave green to bluish colour by indicating the steroids in it. The presence of steroids is detected by the green, bluish colour.[17]

8. Test for Tannins

0.5 g of plant extract diluted in 20ml of distl. Water and boiled then filtered. $Fecl_3$ (0.1%) was added to the filtrate. The blue black color appeared which indicates the presence of tannins.[4]

RESULTS

PHYTOCHEMICAL ANALYSIS

The *Millingtonia hortensis lin* aqueous leaf extract (MHAQLE) showed flavonoids, Glycosides, Tannins, where as the methanol extract (MHMLE) of the plant showed Anthraquinones, Flavonoids, Phenols, Saponins, Tannins. Other extracts from the Acetone (MHALE) expressed Alkaloids, Anthraquinones, Flavonoids, Phenols, Steroids, And Diethyl Ether (MHDLE) extract showed Alkaloids, Phenols and Steroids. And Ethanolic lear extract (MHELE) shows Alkaloids, Flavonoids, Phenols, Saponins, Tannins.

As the Acetone, Ethanolic and methanol leaf extract (MHALE, MHELE, MHMLE) showed more phytochemicals than to the other extracts.

Table: Phytochemical analysis

Phytochemicals		Extracts			
	Acetone	Aqueous	Diethyl Ether	Ethanolic	Methonolic
Alkaloids	+	-	+	+	-
Anthraquinones	+	-	-	-	+
Flavonoids	+	+	-	+	+
Glycosides	-	+	-	-	-
Phenols	+	-	+	-	+
Saponins	-	-	-	+	+
Steroids	+	-	+	+	-
Tannins	-	+	-	+	+

(+) Indicates present, (-) Indicates absent.

DISCUSSION

It was proved that the presence of the phytochemicals like Phenols, Flavonoids, Tannins, Saponins possess free radicals scavenging activity.[17,3,5,6,7,8,9,10,11,12,14] It was proved that the

presence of phytochemicals like phenols, flavonoids[19] may possess the free radical scavenging activity.[18]

CONCLUSION

In this study *Millingtonia hortensis lin* leaf extracts (aqueous, methanol) were used to evaluate the pharmacological activities. The extracts were prepared with different solvents showed various phytochemicals. The aqueous extract consist of flavanoids, Glycosides, Tannins, methanol extract consist of Anthraquinones, flavonoids, Phenols, saponins, tannins.

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