IJPSR (2011), Vol. 2, Issue 1 **(Research Article)**

INTERNATIONAL JOURNAL OF PHARMACEUTICAL SCIENCES AND RESEARCH

Received on 17 August, 2010; received in revised form 12 November, 2010; accepted 21 December, 2010

PRELIMINARY PHYTOCHEMICAL ANALYSIS OF *AEGLE MARMELOS*, *RUTA GRAVEOLENS*, *OPUNTIA DELLINI*, *EUPHORBIA ROYLEANA* AND *EUPHORBIA ANTIQUORUM*

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Keywords:

Phytochemical analysis,

Aegle marmelos,

Ruta graveolens,

Opuntia dellini,

Euphorbia royleana

Euphorbia antiquorum

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ABSTRACT

Plants are the local heritage with global importance. World is endowed with a rich wealth of medicinal plants. They represent and alternative treatment of non-serve cases of infections diseases. They are also the essential an integral part in complementary and alternative medicine and due to they which have developed the ability for the formation of various phytochemicals like terpenoids, steroids, flavonoids, tannins, phenols, saponin, cardio glycosides, carbohydrates, alkaloids, amino acids and proteins substances which are in turn used to restore health and heal many diseases. Natural products of plant and animal origin offer vast resource of newer medicinal agents with potential in clinical use. The present study was an attempt to analyse the phytochemical analysis of *Aegle marmelos*, *Ruta graveolens*, *Opuntia dellini*, *Euphorbia royleana*, *Euphorbia antiquorum* in five different solvent extracts. Some of the plants extracts have shown presence of phytochemicals.

INTRODUCTION: The use of medicinal herb in the treatment and prevention of diseases is attracting attention by scientists world wide. This is corroborated by World Health Organization in its quest to bring primary health care to the people. The plant kingdom has long served as a prolific source of useful drugs, food, additives, flavoring agents, colourants, binders and lubricants. As a matter of fact, it has been estimated that about 25% of all prescribed medicines today are substances derived from plants. The use of traditional medicine and medicinal plants in most developing countries, as a normotive basis for the maintenance of good health, has been widely observed. Furthermore, an increasing reliance on the use of medicinal plants in the industrialized countries has been traced to the extraction and development of several drugs and chemotherapeutics from these plants as well as from traditionally used rural herbal remedies [1].

Plants provide a variety of resources that contribute to the fundamental needs of food, clothing and shelter. Among plants of economic importance medicinal and aromatic plants have played a vital role in alleviating human sufferings [2]. Plants are utilized as therapeutic agents since time immemorial in both organized (Ayurveda, Unani) and unorganized (folk, tribal, native) form. The healing properties of many herbal medicines have been recognized in many ancient cultures [3].

The natural resources how so ever large are bound to diminish hence need effective strategy is needed for sustainable utilization [4]. Cultivation of medicinal and aromatic plants is constrained due to lack of suitable technology, which has led to low yield and poor quality. Consequently, medicinal herbs are predominantly harvested in sufficient quantities from the wild in an unregulated manner [5]. There are many astonishing things to learn from the collector of these herbs. Spreading and preservation of this traditional knowledge has become important for human existence. In modern medicines, plants occupy a significant place as raw material for some important drugs, although synthetic drugs and biotechnology have brought about a revolution in controlling different diseases. Also there is a growing tendency all over the world, to shift from synthetic to natural based products including medicinal and aromatic plants. It is the time to consider neglected and little known medicinal and aromatic plants at global as well as regional level. Conservation and sustainable utilization of Medicinal and Aromatic plants must involve a long term, integrated, and scientifically oriented action program[6]. In the present work, five different medicinal plants belonging to different families were evaluated for their phytochemical analysis.

MATERIALS AND METHOD:

Collection of plants: Fresh plants of *Aegle marmelos*, *Ruta graveolens*, *Opuntia dellini*, *Euphorbia royleana* and *Euphorbia antiquorum* were collected in and around coimbatore (Tamil Nadu, India). The leaves of the above plants were collected and the leaves were dried in shade over a period of week time. It was then made in to powder. This powder was used for the extraction process.

Preparation of Plant Extracts: About 50g of the above-mentioned plant materials were extracted separately with 250 ml of petroleum ether with occasional shaking for 16 hours. The extract was concentrated to 1/4th of its original volume by evaporation at room temperature. Each time before extracting with the next solvent the residue was air-dried thoroughly to remove the solvent used. From this benzene, chloroform,

ethanol, petroleum ether and water extract were prepared.

Phytochemical Screening Tests: Phytochemical screening was done for analyzing secondary metabolites, which are responsible for curing ailments. The phytochemical screening of the plant extract was carried out by modification of following methods [7].

Terpenoids: A volume of 5 ml of the plant extract was mixed in 2 ml of chloroform and concentrated H_2SO_4 was added to form a layer. A reddish brown coloration of the interface was formed to show the presence of terpenoids.

Steriods and Sterols: Two ml of acetic anhydride was added to 0.5 g of the plant extract of each sample with 2 ml of H_2SO_4. The colour change from violet to blue green in the sample indicates the presence of steroids and sterols.

Flavonoids: A volume of 1 to 2 ml of 1% aluminium solution was added to a portion of the filtrate. A yellow coloration observed in the extract indicated the presence of flavonoids.

Tannins: About 0.5 g of the dried powdered sample was boiled in 20 ml of water in a test tube and then filtered. A few drops of 0.1% ferric chloride was added and observed for brownish green or a blue-black coloration.

Phenols: A few drops of alcohol and ferric chloride solution was mixed with the plant extract. A blue green or red colour indicates the presence of Phenol.

Saponin: About 2 g of the powdered sample was boiled in 20 ml of distilled water bath and filtered. The 10 ml of the filtrate was mixed with 5 ml of distilled water and shaken vigorously for a suitable persistent froth. The frothing was mixed with 3 drops of olive oil and shaken vigorously, and then the formation of emulsion was observed.

Cardio Glycosides: A volume of 5 ml of the plant extract was treated with 2 ml of glacial acetic acid containing a drop of ferric chloride solution. Then it was underplayed with 1 ml concentrated sulphuric acid. A brown ring of the interface indicates a deoxy sugar characteristic of cardio glycosides. A violet ring may appear below the ring, while in the acetic acid layer, a greenish ring may form just gradually throughout thin layer.

Carbohydrates (Fehling's test): The extracts were treated with 5.0 ml of fehling's solution and kept in boiling water bath. The formation of yellow or red colour precipitate indicate the presence of reducing sugars.

Amino Acids and Proteins: To 1ml extract, 2 drops of freshly prepared 0.2% ninhydrin reagent was added and heated. Blue colour develops indicating the presence of proteins.

Alkaloids: The plant extract was mixed with a few drops of acetic acid followed by Dragendorff's reagent and mixed well. An orange red precipitate formed indicated the presence of alkaloid.

RESULTS AND DISCUSSION: Since ancient times, plants have been a veritable source of drugs. However, man tends to ignore the importance of herbal medicine. Successive isolation of botanical compounds from plant material is largely dependent on the type of solvent used in the extraction procedure. Phytochemical analysis of the petroleum ether, benzene, chloroform, ethanol and water extracts of *Aegle marmelos, Ruta graveolens, Opuntia dellini, E. Royleana, E. antiquorum* showed the presence of some phytochemical parameters like flavanoids, carbohydrates, saponins. The results of the various phytochemical tests revealed that

steroids, tannins, phenols, cardio glycosides, alkaloids, amino acid and protein were present in the some of the plant extracts shown positive (**Table 1**). But all the plants have shown the absence of terpenoids in the all the extracts.

TABLE 1: PHYTOCHEMICAL ANALYSIS OF *AEGLE MARMELOS*, *RUTA GRAVEOLENS*, *OPUNTIA DELLINI*, *EUPHORBIA ROYLEANA* AND *EUPHORBIA ANTIQUORUM*

Extracts	TE	ST	FL	TA	PH	SA	GG	CA	AP	AL
Petroleum ether										
AM	-	+	+	+	-	+	-	+	-	-
RG	-	+	+	-	-	+	+	+	-	-
OP	-	-	+	-	-	+	-	-	-	-
ER	-	-	+	+	-	+	-	-	-	-
EA	-	-	+	-	-	+	-	-	-	-
Chloroform										
AM	-	-	-	-	-	+	-	+	-	-
RG	-	-	-	-	-	+	-	+	-	+
OP	-	-	+	+	+	-	-	-	-	+
ER	-	-	+	-	-	+	-	-	-	-
EA	-	-	+	+	+	-	-	+	-	+
Benzene										
AM	-	-	+	-	-	+	-	-	+	-
RG	-	-	+	-	-	-	-	+	-	-
OP	-	-	-	-	-	-	-	+	-	+
ER	-	-	+	-	-	-	-	+	-	-
EA	-	-	+	-	-	-	-	+	-	-
Ethanol										
AM	-	-	+	-	-	-	-	+	-	-
RG	-	-	+	-	-	-	-	+	-	-
OP	-	-	+	-	-	+	-	-	-	-
ER	-	-	+	-	-	+	-	-	-	-
EA	-	-	+	-	-	+	-	-	-	-
Water										
AM	-	+	+	+	-	+	+	+	-	+
RG	-	+	+	+	-	+	-	+	-	+
OP	-	-	+	-	-	+	-	-	-	+
ER	-	-	+	-	-	+	-	-	-	+
EA	-	-	+	-	-	+	-	-	-	+

AM = *Aegle marmelos,*RG = *Ruta graveolens,* OD = *Opuntia dellini* ER = *Euphorbia royleana* EA = *Euphorbia antiquorum,* TE= terpenoids, ST=steroids, FL=flavonoids, TA=tannins, PH=phenols, SA=saponin, CG= cardio glycosides, CA= carbohydrates, AP=amino acids and proteins, AL= alkaloids

Therefore, such screening experiments form a primary platform for further phytochemical and pharmacological studies that may open the possibility of finding new clinically effective antimicrobial compounds.

Phytochemicals are readily available over the counter from herb suppliers, natural food stores and self medication. Many reports have shown that phytochemicals are present virtually in all plant tissues [8]. It is quite possible that some of the plants that were ineffective in this study do not possess antibiotic properties, or the plant extracts may have contained antibacterial constituents, just not in sufficient concentrations so as to be effective. It is also possible that the active chemical constituents were not soluble in methanol or water. The drying process may have caused conformational changes to occur in some of the chemical constituents found in these plants [9]. Green plants represent a reservoir of effective chemicals, the repentant and can provide valuable sources of natural pesticides [10]. Phytochemical properties vary among different species [11].

Many plants are usually found useful for the treatment of common diseases. Efforts should be made at creating medicinal plant gardens and generally encourage the development of medicinal plants as a way of enhancing adequate health care for the people considering the rising incidence of complications and death due to disease. Medicinal plant products still remain the primary source of supply of many important drugs in orthodox medicine today. Since there are so many of these naturally occurring substances of plant origin (which cover a wider range than synthetic chemicals), it is obvious that the plant kingdom offers a better opportunity of providing useful medicinal compounds for the treatment of hypertension. Furthermore, elucidating the chemical structure

of active components of herbs also makes room for synthetic modifications for better pharmacokinetic profiles.

Also self reliance (as it relates to local sourcing / manufacturing of drugs) is worth considering as it is an area in which most developing countries have a strong potential which can help to improve the people's health standard. It is important to remark that traditional medicine is at a transitional stage in the development of modern medicines in developing countries, thus progressive and conscious efforts must be made to accelerate the transformation. Furthermore, intensive and systematic research programmes must be drawn up and implemented for the purpose of accelerating the transformation by putting science into the art of traditional medicine.

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