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Detection of Anti-dermatophytic Active Molecule Range of Secondary Metabolites from Non Polar to Polar Solvents 100 Extracts of Ethnic Plants

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Abstract

Ethnic plants and there is in position association with their potentiality. Mainstream of the secondary metabolites are the fundamental therapeutics. Typically these ascertains in superior plants are pleasing all the time additional remarkable in medicine conniving. The present report, 100 diverse solvent extort of 20 ethnic plants from HK region were detected for their foremost ingredients of secondary metabolites. From each plant five extracts were successively extracted from non-polar to polar manner (gradually the polarity increased) for the revealing of secondary metabolites. Deliberate for the screening of secondary metabolites the decisive factor investigations commencement with bunch prudent for alkaloids dragendroff's, tannin for ferric chloride, phenolics for lead acetate, glycoside for keller-killiani test, flavonoids for NaoH and saponins for foam test. The apparent sites of secondary metabolites in the seam of non-polar to polar have been sensible. The paramount discovery of alkaloids, tannins recognized at non-polar range while in centre polar flavonoids; tannins have been noticed. Glycosides and saponins completely establish at far above the argument polar. The outcome of the in attending report will be incredibly much positive for remoteness of varied group of resultant metabolites in amass the time, chemicals, vigour consumption in active portion drug design.

Keywords: Ethnic plants; Antidermatophytic; Detection of secondary metabolites; Phytochemical locations; Dynamic secondary metabolites

Introduction

Privileged plants fabricate both primary and secondary chemical metabolites, the earlier being vitally imperative in normal improvement and reproduction of plants [1,2]. On the other hand, secondary metabolites are known to play an important role in plant endurance as protection mechanisms adjacent to adverse biotic and biotic circumstances. They comprise numerous groups of chemicals with inconsistent biological activities [3,4]. Ethnic therapeutic plants plays a major role in gathering the remedial and wellbeing needs of about 70% of populations in developed and developing countries, which serve as an important resource for the treatment of various maladies and illnesses In developing countries, there is an increasing attempt to incorporate the traditional medicines, especially herbal preparations in the local healthcare systems and modernized people are increasingly turning to herbal medicine [5]. Phytochemicals are biologically active, naturally occurring chemical compounds found in plants, which provide health benefits for humans further than those attributed to macronutrients and micronutrients [6]. They protect plants from disease and damage and contribute to the plant's colour, aroma and flavour. In general, the plant chemicals that protect plant cells from environmental hazards such as pollution, stress, deficiency, UV exposure and pathogenic attack are called as phytochemicals [7].

The conservative therapeutic plants from Hyderabad Karnataka region have been beforehand documented by the present author [8]. There are no reports on secondary metabolites incidence reports. So in the current report a very small part of the plants secondary metabolites incidence broad spectrum has testimonies.

Materials and Methods

The ethno-plant materials (parts used declared in the table) were collected from Hyderabad Karnataka region of Karnataka State, India. The plant species were authenticated, deposited the herbarium specimens in the Botany, Gulbarga University, Karnataka, where voucher numbers were allotted [9]. Anxious used plant parts of the plant samples were methodically washed with running tap water 2-3 times and then finally washed with distilled water followed by shade-dried for seven days and then dried in an oven below 50°C. The dried plant materials were then powdered using mixer and grinder. 30 g of plant powder were extracted with 100 ml of pet ether, chloroform, ethyl acetate and Methanol for 72 h by Soxhlet extractor in successive extraction method. Then the extracts with different solvents were evaporated using rotary evaporator. The extracts were transferred into pre-weighed sample containers and were stored later was used for preliminary phyto-chemicals detection [10].

Initial screening tests for secondary metabolites

Introductory tests, for the detection of secondary metabolites, were carried out for all the extracts of 61 plants by adopting standard methods [11].

Research of test solution: 500 mg of each extract was dissolved in 100 ml of the respective solvent and filtered through Whatman filter paper No.1. Thus, the filtrates obtained were used as test solutions for

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the following preliminary screening tests.

Tests for alkaloids: The store solutions of Pet. Ether, $CHCl_3$, Et-OH and aqueous extracts were further mixed with the required quantity of ammonia solution followed by acidified chloroform (0.1 N HCI) and filtered. Thus, the filtered is used as test solution for alkaloid detection using following tests.

Dragendorff's reagent: 2 ml of Dragendorff's reagent and 2 ml of dilute HCl were added to the test solution. An orange red coloured precipitate indicates the presence of alkaloids.

Tests for flavonoids

Pew test (Zn/HCl): A pinch of zinc powder and about 5 drops of 5 N HCI were added to the test solution. It results deep purple red (dihydroquercetin) or cherry red (dihydrokaemferol) colours. Flavonones, dihydrochalcones and other flavonoids get at most pinkish colours.

NaOH test: 1 ml of 1 N NaOH solution was added to the 1 ml of test solution, formation of yellow colour indicates the presence of flavonoids.

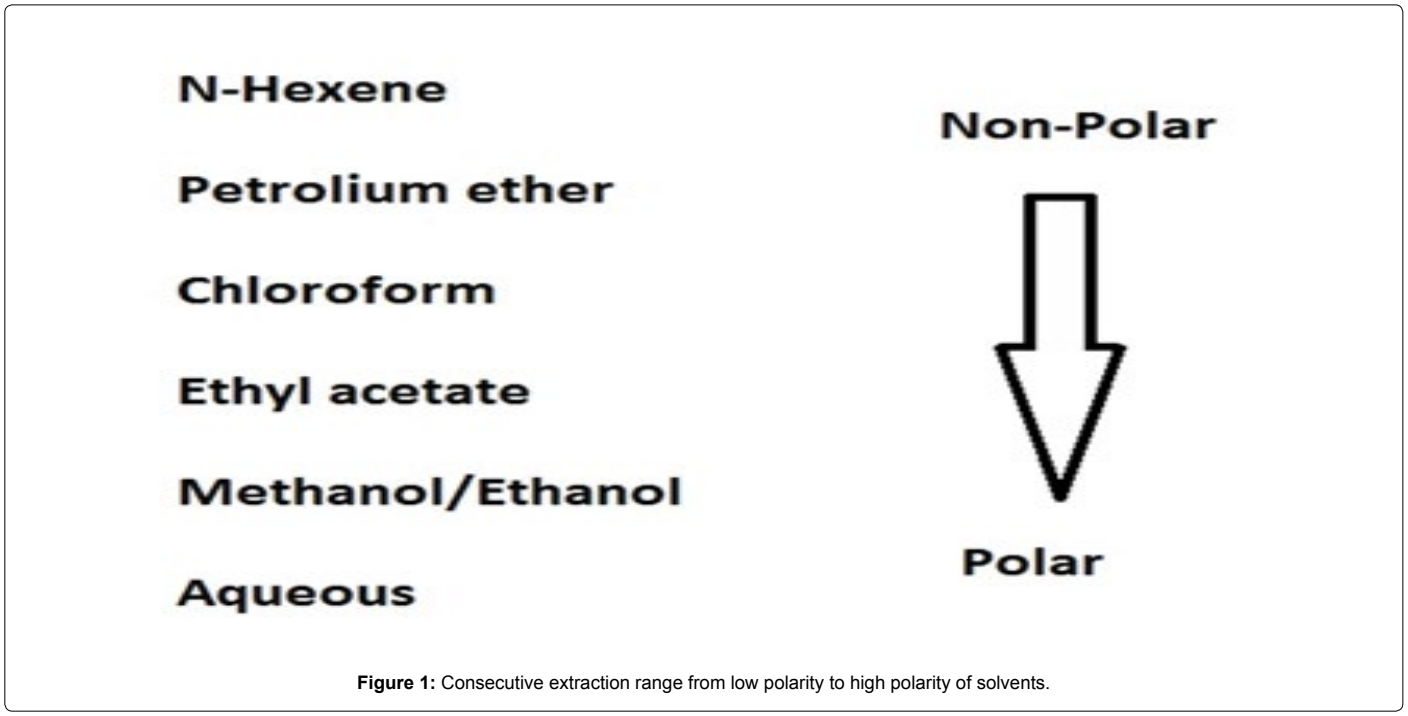

Figure 1: Consecutive extraction range from low polarity to high polarity of solvents.

Plant part used	Plant name and Family	Plant constituents																													
		Phenols					Flavonoids					Tannins					Alkaloids					Saponins					Glycosides				
		A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Leaf	*Aloe vera* L.(Liliaceae)	-	-	+	+	+	-	+	+	+	-	-	-	+	+	+	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-
Leaf	*Amaranthus spinosus* L. (Amarathaceae)	-	-	-	+	+	-	-	+	+	-	-	-	-	+	+	-	-	-	-	-	-	+	-	-	-	-	-	-	+	+
Leaf	*Annona reticulata* L. (Annonaceae)	-	-	-	+	-	-	-	+	+	+	-	-	+	+	-	-	-	-	-	-	-	-	-	+	+	-	-	+	-	-
Leaf	*Annona squamosa* L. (Annonaceae)	+	-	+	+	-	-	-	+	+	+	-	-	-	+	-	-	-	-	+	-	-	-	-	+	+	-	-	+	-	-
Leaf	*Argemone mexicana* L. (Papaveraceae)	+	+	+	+	-	-	+	+	+	-	+	+	+	+	-	+	-	-	+	-	-	-	-	+	-	-	-	-	-	-
Seed	*Celosia argentea* L. (Amarathaceae)	-	-	+	+	-	-	-	-	+	-	-	-	-	+	-	-	-	-	-	+	-	-	-	+	+	-	+	-	+	-
Leaf	*Cephalandra indica* (Cucurbitaceae)	-	-	-	+	+	-	-	-	+	+	-	-	+	+	-	-	-	+	+	+	-	-	+	+	+	-	-	+	+	+
Leaf	*Citrus limon* (Rutaceae)	-	-	+	+	+	-	-	+	+	-	-	-	+	+	+	+	+	+	+	-	-	-	+	+	+	-	-	-	-	-
Seed	*Corchorus capsularis* L. (Tiliaceae)	-	-	+	+	-	-	-	+	+	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aerial	*Coriandrum sativam* (Apiaceae)	-	-	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

flower	*Hibiscus rosa-sinensis* L. (Malveceae)	-	-	-	-	+	-	+	+	+	+	-	-	+	+	+	+	+	+	-	-	-	+	+	+	+	-	-	-	-	-
flower	*Ixora coccinea* L. (Rubiaceae)	-	-	+	+	-	+	-	+	+	+	-	-	+	+	+	+	+	+	-	-	-	-	+	+	+	-	-	+	+	-
Leaf	*Jatropha glandulifera* Roxb. (Euphorbiaceae)	-	+	+	+	-	-	-	+	+	+	-	-	-	+	+	+	+	-	-	-	-	-	-	+	+	-	-	+	+	+
Leaf	*Lantana camara* L. (Verbenaceae)	-	+	+	+	-	-	-	+	+	-	-	+	+	+	-	-	+	-	-	-	+	-	+	+	+	-	-	+	+	-
Leaf	*Murraya koenigii* L. (Rutaceae)	+	-	-	+	-	+	+	+	+	+	-	+	+	-	-	+	+	+	+	-	-	+	+	+	+	-	-	+	+	-
Seed	*Piper nigrum* L.(Piperaceae)	-	+	+	-	-	-	+	+	+	+	-	+	+	+	-	+	+	+	-	-	-	-	-	-	-	-	+	+	+	-
Leaf	*Plumbago zeylanica* L.(Plumbaginaceae)	+	+	+	+	+	+	-	-	+	+	+	-	-	+	+	+	-	-	+	+	-	-	-	+	+	-	-	+	+	+
Seed	*Sterculia foetida* L (Sterculaceae)	-	+	+	+	+	-	-	+	+	+	-	+	-	+	+	+	+	-	+	-	-	+	+	+	+	-	+	+	+	-
Bark	*Semicaprpus anacardium* L. (Anacardiaceae)	-	+	+	-	+	-	-	+	+	+	-	+	+	+	-	-	+	+	-	-	-	-	-	+	+	-	-	+	+	+
Leaf	*Vitex negudu* (Verbenaceae)	+	+	-	+	+	+	+	+	+	+	-	+	+	-	+	-	-	-	+	-	-	-	-	-	-	-	-	+	+	-

A-Petroleum ether extract, B-Chloroform extract, C-Ethyalacetate extract, D-Methanol extract, E-Aqueous extract, --absent, +-Present.

Table 1: Preliminary Phytochemical screening for Secondary Metabolites of 20 traditional medicinal plants species;

Preliminary screening of secondary metabolites test names: Alkaloids: Dragendroff's, Tannin: Ferric chloride, Phenolic: lead acetate, Glycoside: Keller-Killiani test, Flavonoids: NaoH, Saponins: Foam test.

Tests for glycosides

Kellar-killiani test: 1 ml of glacial acetic acid was carefully added to 2 ml of test solution of the extract and mixed well. Further, 2 drops of ferric chloride solution wad added after cooling. These contents were transferred carefully to a test tube containing 2 ml of conc. H_2SO_4. A reddish brown ring was observed at the junction of two layers.

Tests for phenols

Lead acetate test: The extract (50 mg) was dissolved in 5 ml of distilled water. To this, 3 ml of 10% lead acetate were added. A bulky white precipitate indicated the presence of phenol compounds.

Testes for Saponins: Foam test; 0.1 g of crude extract was shaken vigorously in 2 ml of distilled water. Formation of honeycomb like fourth persists for a few minutes indicate the presence of saponins.

Results and Discussion

Ethnic vegetation and their information clubbed with their potentiality. The secondary metabolites are the elementary therapeutics. Frequently these initiate in privileged plants are gratifying all the time more significant in medicine deceitful. In the current description, 100 different solvent extracts of 20 ethnic plant species from Hyderabad Karnataka region were tested for their leading constituent of secondary metabolites. On or-after every of plant species particular part of five successive extracts was certain for the discovery of potential metabolites.

In the core of the effectual anti-skin diseases secondary metabolites establish at near the non-polar solvent extracts. Phenols and flavonoids found at non-polar like ethanolic or methanolic extracts, reasonably found optimistic incidence at aqueous extracts establish positive rejoinder. Whilst the very much less quantity of incidence found at non-polar extracts (Figure 1). The results of the consecutive extracts donate accuracy for broadcast of secondary metabolites and isolations of detecting of vigorous molecule alongside targeted diseases.

The rudimentary successive extracts of 20 ethnic-medicinal plants were qualitatively monitored for the incident of diverse secondary metabolites such as phenols (Lead acetate test), flavonoids (NaOH test), tannins (Ferric chloride test), alkaloids (Dragendroff's test), (Saponins Foam test), glycosides (Keller-Killiani test). The reactions with these reagents have shown the incidence of metabolites and are recorded in the Table 1. The instigation screening and the number of assenting response of secondary metabolites were individual in Figures 2 and 3.

The present result provides a basic idea for incidence of secondary metabolites commonly. By the track of the detections the prospect isolation processes would be appropriate for energetic molecules and in drug designs.

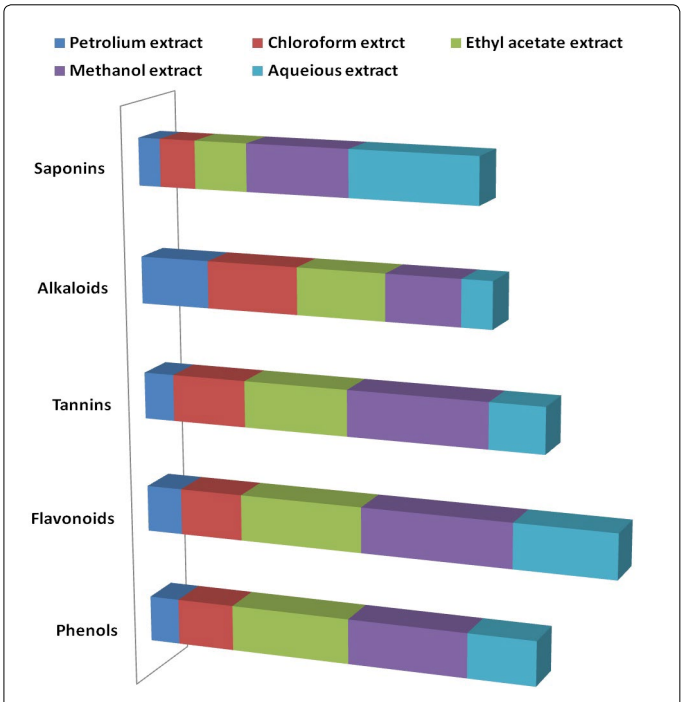

Figure 2: Preliminary phytochemical screening, positive response of secondary metabolites of 20 ethnic medicinal plant drugs of Hyderabad Karnataka region.

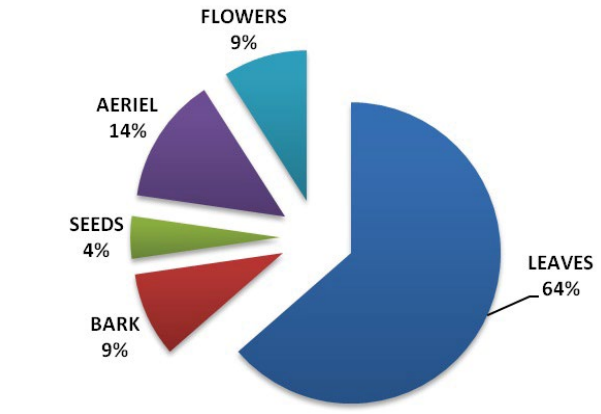

Figure 3: Preliminary screening of secondary metabolites of 20 ethnic medicinal plant drugs used in the treatment of skin diseases.

Medicinal Plants as Sources of new therapeutics have been described [12] by Walter H et al., at previously maximum results with the present one are differing. The results mediated reached with similar to potential therapeutic applications of some antinutritional plant secondary metabolites [13]. Whereas, the phytochemical content, polyphenolic composition [14] and other natural antimycobacterial metabolites activities, [14,15] have been compared with present screening also differed at preliminary level. Phytochemical screening of active secondary metabolites current also differs with preceding occupation reports [16-19]. The present reported screening grades varying with past reports of *Acacia arabica*, *Amaranthus viridis*, Antifungal and phytochemical screening, Alpinia and Convolvulus, *Euphorbia tirucalli* because of a biotic factors consequence also impact the presence of secondary metabolites [20-24].

Conclusion

The secondary metabolites are the resource of medicinal plants and their products, extracts, the knowledge on medicinal possessions centralised at ethnic communities. A very few of the ethnic counteractive therapeutic plants are obtainable in the indulgence of skin diseases. Consequently, efforts ought to be betrothed to defend ethno curative plants and also the pastoral understanding for outlook health care coordination's. The current results provide an essential thought for incidence of secondary metabolites broadly. By the course of the detections the expectations isolation progressions would be opportune for active molecules and in drug designs to the prospect researchers.

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