

PHYTOCHEMICAL ANALYSIS OF TULSI

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Abstract : Tulsi is also known as *Ocimum sanctum* Linn or Holybasil is an aromatic plant. It belongs to the family Lamiaceae. It is widely used in Ayurveda and Siddha system of medicine to cure various ailments. It is one of the holiest and sacred herbs grown in India. This plant is known to possess antiseptic, analgesic, anti-inflammatory, antimicrobial, hypotensive and antioxidant properties. The dried powder of Tulsi (50 g) was placed in the thimble of Soxhlet apparatus. 500 ml of distilled water was used as a solvent. The extract was concentrated using Rotavapor. Then the extract was dried in a digital water bath till a dark green residue was obtained. The percentage yield was 7 % w/w. The test sample was subjected to phytochemical analysis in order to find out the presence of phytochemical constituents. The phytochemical tests employed for alkaloids and tannins, Cardiac glycosides, saponins and flavonoids and terpenoids.

Keywords : Tulsi, Phytochemical, Anti-inflammatory etc.

I. INTRODUCTION

Knowledge of Healing powers of plant is ancient. Ayurvedic system of medicine, Traditional healers and folklores contain volumes of materials on the healing potential of Tulsi. The plant is a herbaceous perennial, belongs to family Lamiaceae which is 60 -90 cm high with short stem, large leaves oblong and up to one meter long, Flowers are yellow white in colour, sterile and do not produce viable seed. The fresh fruits and leaves have been used in Indian system of medicine to cure various ailments. It is one of the holiest and sacred herbs grown in India and Hindus worship this plant. This plant is known to possess antiseptic, analgesic, anti-inflammatory, antimicrobial, antistress, Immunomodulatory, hypoglycemic, hypotensive and antioxidant properties. In view of this background we performed the extraction and preliminary phytochemical analysis of the aqueous extract of *Ocimum sanctum*.

II. MATERIAL AND METHODS

Plant Material

The fresh leaves of Tulsi taken from home. The leaves were separated, shade dried and grounded into powder. The powder was stored in a clean closed container until further use.

Soxhlet Extraction

The dried powder of Tulsi (50 g) was placed in the thimble of Soxhlet apparatus. 500 ml of distilled water was used as a solvent. The extraction was continued till clear solvent was seen in the thimble. The extract was concentrated using Rota vapor. Then the extract was dried in a digital water bath till a dark green residue was obtained. The percentage yield of the extract was calculated using the following formula

$$\text{Percentage yield} = \frac{\text{Final weight of the dried extract}}{\text{Initial weight of the powder}} \times 100$$

The percentage yield was 7 % W/W. The extracts were kept in the refrigerator till further use.

Phytochemical Analysis

The test sample was subjected to phytochemical analysis in order to find out the presence of phytochemical constituents. The phytochemical tests employed for alkaloids and tannins, Cardiac, saponins and flavonoids and terpenoids.

Test For Alkaloids

Wagner's test 20mg of turmeric was dissolved in 2ml of methanol. Few drops of 1% HCl added to it. Then the mixture was heated, kept in steam and after cooling, drops of Wagner's reagent. The sample was observed for turbidity or precipitation.

Test For Tannins

Lead test 20mg of turmeric was dissolved in 1ml of distilled water in a test tube and 1-3 drops of Ferric chloride were added to the solution. Then the mixture was observed for blue or green colour.

Test For Saponins

Foam test 40 mg of turmeric was dissolved with 5ml of distilled water and shaken vigorously till a stable persistent froth was obtained. The froth was mixed with 3 drops of olive oil and shaken vigorously and then observed for emulsion.

Test For Flavonoids

Ferric chloride test 20mg of turmeric was dissolved in 1ml of distilled water. 0.5ml of dilute ammonia solution was added to it. Conc. Sulphuric acid was added later. A yellow colour indicated the presence of flavonoids. The yellow colour disappeared on allowing the solution to stand

Test For Terpenoids

Salkowaski's test 20mg of turmeric was dissolved in 1ml of chloroform and 1ml of concentrated sulphuric acid was added to it. A reddish brown discolouration at the interface showed the presence of terpenoids.

Test For Carbohydrates

Fehling's test Few drops of extract are heated with Fehling's A and B solution. Appearance of orange red precipitate indicates presence of carbohydrates.

Test For Proteins

Biuret's test Add 2ml of Biuret reagent to 2ml of extract. Shake well and warm it on water bath. Appearance of red or violet colour indicates presence of proteins.

TABLE 1: Results of Phytochemical analysis:Phytochemicals

Phytochemicals	Test	Observation	Inference
Alkaloids	Wagner's test	Red precipitate	+ ve
Tannins and Phenolic compound	Lead test	Green colour	+ ve
Terpenoids and Phytosterols	Salkowaski's test	Reddish-brown colour	+ ve
Saponins	Foam test	Presence of Emulsion	+ ve
Flavonoids	Ferric chloride test	White precipitate	+ ve
Carbohydrates.	Fehling's test		+ ve
Test for proteins	Biuret's test		- ve

III. RESULT AND DISCUSSION

Many bioactive molecules have been found in Tulsi. The amount of substances produced depends on the nature of the soil, harvesting, processing and storage. Phytochemicals the various Phytochemicals in the plant are essential oil from leaves like α -Thujene, Octane, Nonane, Benzene, (Z)-3-hexanol, Ethyl 2-methyl butyrate α -pinene, β -pinene, Toluene, citronellal, Camphene, Sabinene, Dimethyl benzene, Myrcene, Ethyl benzene, Limonene, 1,8-cineole, cis- β -ocimene, p-cymene, Terpinolene, Allo-ocimene, Butyl- acid, Linolenic acid, Oleic acid, Sitosterol etc. Mineral Content/ 100 gram are vitamin C (83 μ g), Carotene (2.5 μ g), Ca (3.15%), P (0.34%), Cr(2.9 μ g), Cu (0.4 μ g), Zn (0.15 μ g), V (0.54 μ g), Fe (2.32 μ g), Ni (0.73 μ g) etc benzene, α -cubebene, Linalool, Eugenol, Methyl eugenol, β -elemene, (E)-cinnamyl, Lactate.

Alcoholic extract increased step down latency and acetyl cholinesterase inhibition and hence can be used in the treatment of cognitive disorders. It has also shown memory enhancing, hepatoprotective, antifertility, antiulcer, antidiabetic, antiarthritic, anticataract, antithyroid, antihelminthic, anticataract, anti-amnesic and nootropic activity. *Ocimum sanctum* has been widely employed in traditional medicines. Hence phytoconstituents from this plant can be used in variety of disorders afflicting mankind.

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