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Extraction and Phytochemical screening of various extract of *Salvia officinalis* Linn.

Prashanti Chitrapu* and Aditya Nath Pandey

Faculty of Pharmacy, Mansarovar Global University, Sehore, (M.P.) - India

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Abstract

Medicinal plants have served as rich sources of pharmacologically active substances. Herbs have been used in a diverse array of purposes, including medicine, nutrition, flavorings, beverages, dying, repellents, fragrances, cosmetics, charms, smoking and industrial uses. Today, herbs are still found in 40% of prescription drugs. *Salvia officinalis*, commonly known as sage is a perennial, evergreen shrub, with woody stems, grayish leaves, and blue to purplish flowers. It belongs to family Lamiaceae and native to the Mediterranean region, though it has been naturalized in many places throughout the world. In the present paper % extract obtained and presence of major phytochemicals from the leaves extract of the plant was reported.

Key words: Leaves, Extraction, Phytochemical screening

Introduction

Medicinal plants are a source of great economic value all over the world. Nature has bestowed on us a very rich botanical wealth and a large number of diverse types of plants grow in different parts of the country [12] .Phytochemicals are chemical compounds synthesized during the various metabolic processes. Various phytochemical possess a variety of pharmacological and antimicrobial activities. They are known to posses various secondary metabolites like glycosides, saponins, flavonoids, steroids, tannins, alkaloids, triterpenes which are therefore, should be utilized to combat the disease causing pathogens. Some of these serve as plant defense mechanisms against pathogenic organisms. Standardization of plant materials is the need of the day. Several pharmacopoeia containing monographs of the plant materials describe only the physicochemical parameters. [1-2]

The plant has variable in size, leaf and flower color, and foliage pattern, with many variegated leaf types. The Old World type grows to approximately 60 cm (2 ft) tall and wide, with lavender flowers most common, though they can also be white, pink, or purple. The plant flowers in late spring or summer. The leaves are oblong, ranging in size up to 65 mm (2+½ in) long by 25 mm (1 in) wide. Leaves are grey-green, rugose on the upper side, and nearly white underneath due to the many short soft hairs. Modern cultivars include leaves with purple, rose, cream, and yellow in many variegated combinations. [3]The present work was undertaken to extract the leaves of *Salvia officinalis* Linn. and to reveal the presence of active phyto-constituents in it.

***Corresponding Author**
E.mail: pragyasahu55@gmail.com

Fig. 1: *Salvia officinalis* Linn.: Leaves & Flowers

Material and Method

Collection of Plant Material

The leaves of *Salvia officinalis* Linn. was collected in the months of July-December 2021 from the Bhopal region and identified & authenticated by Botanist.

Successive Extraction of Plant Material

Sample were shattered and screened with 40 mesh. The shade dried coarsely powdered plant material (250gms) were loaded in Soxhlet apparatus and was extracted with petroleum ether (60-62°C), Chloroform, ethanol and water until the extraction was completed. After completion of extraction, the solvent was removed by distillation. The extracts were dried using rotator evaporator. [4] The residue was then stored in dessicator and percentage yield were determined.

Preliminary Phytochemical Evaluation

The various extract obtained after extraction were subjected for phytochemical screening to determine the presence of various phytochemical present in the extracts. The standard procedures [5] were adopted to perform the study.

Tests for carbohydrates

Molisch's test

To the Sample 2-3 drops of 1% alcoholic - napthol solution and 2 ml of conc. sulphuric acid was added along the sides of the test tube. Appearance of purple to violet ring at the junction of two liquids shows the presence of carbohydrates.

Fehling test

To the sample add fehling reagent, appearance of brick red precipitate shows presence of carbohydrates.

Test for glycosides

Legal's test

To the sample add 1 ml of pyridine and few drops of sodium nitropruside solutions and then it was made alkaline with sodium hydroxide solution. Appearance of pink to red colour shows the presence of glycosides.

Borntrager's test

Sample was treated with chloroform and then the chloroform layer was separated. To this equal quantity of dilute ammonia solution was added. Ammonia layer acquires pink color, showing the presence of glycosides.

Baljet's test

To the sample add picric acid, orange color shows presence of glycosides.

Test for alkaloids

A small portion of the sample was stirred separately with few drops of dilute hydrochloric acid and was tested with various reagents for the presence of alkaloids. The reagents are Dragendroff's reagent - Reddish brown precipitates; Wagner;s reagent - Reddish brown precipitates; Mayer's reagent - Cream color precipitates; Hager's reagent - Yellow color precipitate

Test for proteins and free amino acids

Small quantities of the sample was dissolved in few ml of water and treated with following reagents.

Million's reagent: Appearance of red color shows the Presence of protein and free amino acid.

Ninhydrin reagent: Appearance of purple color shows the Presence of Proteins and free amino acids.

Biuret's test: Equal volumes of 5% sodium hydroxide solution & 1% copper sulphate solution was added. Appearance of pink or purple color shows the presence of proteins and amino acids.

Test for tannins and phenolic compounds

A small quantity of the sample was taken separately in water and test for the presence of

phenol compounds and tannins was carried out with the following reagents. Dilute Ferric chloride solution (5%) - Blue color or green color 10% lead acetate solution - White precipitates

Test for flavonoids

Alkaline reagent test

To the test solution add few drops of magnesium hydroxide solution, intense yellow colour is formed which turns to colourless on addition of few drops of dilute acid indicates presence of flavonoids.

Shinoda's test

Small quantities of the sample was dissolved in alcohol, to them piece of magnesium followed by conc. hydrochloric acid drop wise added and heated. Appearance of pink, crimson red, green to blue color shows the presence of flavonoids**.**

Tests for fixed oils and fats

Spot test

A small quantity of sample was separately pressed between two filter papers. Appearance of oil stain on the paper indicates the presence of fixed oil.

Saponification test

Few drops of 0.5 N alcoholic potassium hydroxide were added to a small quantity of sample along with a drop of phenolpthlein, the mixture was heated on a water bath for 1-2 hours, formation of soap or partial neutralization of alkali indicates the presence of fixed oils and fats.

Tests for steroids and triterpenoids

Libermann-burchard test

Treat the sample with few drops of acetic anhydride, boil and cool. Then add con. sulphuric acid from the side of test tube, brown ring is formed at the junction two layers and upper layer turns green which shows presence of steroids and formation of deep red colour indicates presence of triterpenoid.

Salkowski test

Treat the sample with few drop of conc. sulphuric acid, red colour at lower layer indicates presence of steroids and formation of yellow coloured lower layer indicates presence of triterpenoids.

Test for mucilage and gums

Small quantities of sample was added separately to 25 ml of absolute alcohol with constant stirring and filtered. The precipitates was dried in oil and examined for its swelling property for the presence of gum and mucilage.

To the sample add ruthenium red solution, pink color shows presence of mucilage.

Test for waxes

To the test solution add alcoholic alkali solution, waxes get saponified.

Results and Discussion

The shade dried coarsely powdered leaves of *Salvia officinalis* Linn. was extracted with petroleum ether, Chloroform, ethanol and water. The extracts obtained were evaluated for pH, color and % yield. The results are presented in table 1. The various extracts thus obtained after extraction were subjected for phytochemical screening to determine the presence of various phytochemical present in the extracts. The standard procedure was adopted to perform the study. The results were presented in table 2.

Table 1: Estimation of % yield of various extract of leaves of *Salvia officinalis* Linn.

S/No.	Extract	Parameters			
		Nature of Extract	Color	pH	% Yield (w/w)
1.	PEESOL	Semi Solid	Light greenish	6.9	1.39
2.	CESOL	Sticky solid	Greenish	6.9	1.48
3.	EESOL	Powder	Green	7.2	6.83
4.	AESOL	Powder	Dark Green	7.0	10.29

Table 2: Preliminary phytochemical screening of leaves of *Salvia officinalis* Linn.

S/No.	Constituents	SOL			
		PEE	CE	EE	AE
1.	Carbohydrates	-	-	+	+
2.	Glycosides	-	-	-	-
3.	Alkaloids	-	-	+	+
4.	Protein & Amino acid	+	+	+	+
5.	Tannins & Phenolic compounds	-	-	+	+
6.	Flavonoids	-	+	+	+
7.	Fixed oil and Fats	-	-	-	-
8.	Steriods & Triterpenoids	+	+	+	+
9.	Waxes	-	-	-	-
10.	Mucilage & Gums	-	-	-	-

Abbr.: +=Present; -=Absent

Conclusion

The extracts obtained were evaluated for phytochemical screening to determine the presence of various phytochemical present in the extracts. Results indicated that EE and AE revealed the presence of maximum constituents.

References

1. Ambasta, S. P. (1992). *The useful plants of India*, Publications & Information Directorate, CSIR, New Delhi, 251.
2. Dwivedi S. (2009). Status survey of medicinal plants wealth of Malwa region of Madhya Pradesh with special reference to conservation of vulnerable and endangered species, *J. Econ. Taxon. Bot.*, 33(2): 443-452.
3. Bisset N.G. and Wicht M. Herbal Drugs and Phytopharmaceuticals: A Handbook for Practice on a Scientific Basis with Reference to German Commision E Monographs (2nd ed.), CRC Press, Boca Raton, FI (2001), pp. 440-443
4. Kokate C.K. (1997). Practical Pharmacognosy, Vallabh Prakashan, Delhi, 4 Edition, 107-111.
5. Divakar M.C. (2002). Plant drug evaluation-A laboratory guide, CD remedies, 2 Edition, 84-92.

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