

Studies of qualitative photochemical analysis of different plant parts of sesame (*Sesamum indicum*).

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ABSTRACT

The present investigation the phytochemical analysis was carried out for the different parts of the plant extracted with methanol and ethanol solvents. The qualitative analysis showed that alkaloids were mainly seen in most of the samples except methanolic extract of stem and fruit. Tannins, proteins, carbohydrate and phenol,protein and carbohydrates were present in all the 4 samples extracted by both methanol and ethanol. Flavonoids were seen only in leaf samples extracted with methanol. Saponins were mainly present in the samples extracted from methanolic solvent.

Key words: *Sesamum indicum* , Photochemical, Qualitative analysis, Tannins.

INTRODUCTION

Sesame is an important yielding plant is extensively cultivated in several countries . In India about 52 thousand tones seeds produces. Sesame seeds is used as a nourishing food and also as flavoring agent. The seed is rich source of edible oil. The oil is uses as anointing the baby, manufacture of perfumed oils, soaps, cosmetics. Oils also used in medicine. The oil rich in protein ,carbohydrates and certain minerals. The photochemical contents viz, alkaloids. flavonoids, tannins, terpenoids, saponins ,phenols, proteins and carbohydrates. can help us understand the material absorption of plants, and reflect the difference of physiological function among various plants or of same plant in different regions. Sesame plant have great importance to the health of the individuals and communities. In recent years, many scientific investigations of traditional herbal remedies for several diseases have been carried out and this has lead in the development of alternative drug and therapeutic strategies. Since the consumption of medicinal plants is increasing, it is interesting to use these plants. as a supplement in food taking into account that these plants can present a significant amount of trace elements and other nutrients.

MATERIALS AND METHODS

Sample Collection:

Fresh & healthy plant parts of sesame like stem, leaf, flower, fruit & root were collected in a separate sterile polythene bags from the area in and around Biharsharif, Pawapuri, Nalanda (dist), Bihar. Collected plant parts were examined and identified with the help of regional floras. Specimens were further confirmed with reference to Herbarium sheets available in the department of Botany, Magadh University, Bodh Gaa, Bihar, India.

Preparation of Solvent Extracts

The cleaned, healthy plant materials are cut in to small sections and dried under shade for three to four weeks. The dried material was ground into fine powder in an electric grinder. Powder so obtained was stored in desiccators setup and used for extraction. Extraction was carried out using 1gm of each sample coarsely powdered plant material with 25 ml of solvent and kept for 48 hrs with slight shaking. Here, ethanol and methanol (HPLC grade) was used for extraction. The extraction was done at room temperature. All the extracts were filtered through

Whatmann No.1 paper to get filtrate as extracts and were dried to concentrate the samples. The residual power was weighed and was re dissolved in the respective solvents to get a final concentration 1mg/ml. The powder was stored in airtight containers under refrigeration condition

PHYTOCHEMICAL ANALYSIS

For qualitative analysis of samples following standard protocols were used to check for the presence of Alkaloids, Flavonoids, Phenols, Saponins, Tannins, Terpenoids Proteins and Carbohydrates.

Alkaloids Test: 1 ml of each extract, 1 ml of marquis reagent, 2ml of concentrated sulphuric acid and few drops of 40% formaldehyde were added and mixed, appearance of dark orange or purple colour indicates the presence of alkaloids.

Flavonoids Test: 2 ml of each extract was added with few drops of 20% sodium hydroxide, formation of intense yellow colour is observed. To this, few drops of 70% dilute hydrochloric acid were added and yellow colour was disappeared. Formation and disappearance of yellow colour indicates the presence of flavonoids in the sample extract.

Saponins Test : To 2 ml of each extract, 6 ml of distilled water were added and shaken vigorously; formation of bubbles or persistent foam indicates the presence of saponins.

Tannins Test : To 2 ml of each extract, 10% of alcoholic ferric chloride was added; formation of brownish blue or black colour indicates the presence of tannins.

Phenols Test: To 2 ml of each extract, 2 ml of 5% aqueous ferric chloride were added; formation of blue colour indicates the presence of phenols in the sample extract.

Proteins Test :To 2 ml of each extract, 1 ml of 40% sodium hydroxide and few drops of 1% copper sulphate were added; formation of violet colour indicates the presence of peptide linkage molecules in the sample extract.

Terpenoids Test :Take 1 ml of extract of each solvent and add 0.5 ml of chloroform followed by a few drops of concentrated sulphuric acid, formation of reddish brown precipitate indicates the presence of terpenoids in the extract.

Carbohydrates Test :Take 1 ml of extract, add few drops of Molisch's reagent and then add 1 ml of concentrated sulphuric acid at the side of the tubes. The mixture was then allowed to stand for 2 to 3 minutes. Formation of red or dull violet colour indicates the presence of carbohydrates in the sample extract.

RESULTS AND DISCUSSION

Our result revealed that phytoconstituents like Alkaloids were mainly seen in most of the samples except methanolic extract of stem and methanolic extract of fruit. Tannins, proteins, carbohydrate and phenol were present in all the 4 samples extracted by both methanol and ethanol. Flavonoids were seen only in leaf samples where as cardiac glycosides was seen only in stem extracted when extracted with methanol. Saponins were mainly present in the samples extracted from methanolic solvent.

Table 1 - Qualitative Analysis of Phytochemicals in different plant parts of Sesame.

S. N	Plant Parts	Solvent	Alkaloids	Flavonoids	Tannins	Terpenoids	Saponins	Phenols	Protein	Carbohydrates
1	Root	M	+	-	+	+	+	+	+	+
		E	-	-	+	+	-	+	+	+
2	Stem	M	-	-	+	+	+	+	+	+
		E	+	-	+	+	-	+	+	+
3	Leaf	M	+	+	+	+	+	+	+	+
		E	+	+	+	+	-	+	+	+
	Fruit	M	-	-	+	-	-	+	+	+
		E	+	-	+	-	-	+	+	+

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