

To Study Herbal Monograph of Zingiber Officinale

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Abstract: Ginger (*Zingiber officinale*.) Belongs to the Zingiberaceae family. The health-promoting idea of ginger is said to be rich in its phytochemistry. This study aims to review current evidence on the effects of ginger as an anti-inflammatory and anti-oxidative. Gastrointestinal cancer (GI), a cancer of the various organs in the digestive system, is one of the most common cancers in the world. The mortality rate for some of these cancers is very high. Although many types of chemotherapeutic agents have been introduced in the last few decades to fight GI cancer, most of them are very expensive and have side effects. Therefore, compounds found in natural sources, which are considered safe and less expensive, are needed. Ginger (*Zingiber officinale*) is one of the most widely used natural products used as a spice and medicine to treat nausea, diarrhea, heartburn, heartburn, diarrhea, anorexia, infections, coughs and bronchitis. Experimental studies have shown that ginger and its active ingredients including 6-gingerol and 6-shogaol perform anti-cancer functions against GI cancer.

Keywords: Ginger, Anti-Inflammatory, Anti-Oxidant, GI Cancer

I. INTRODUCTION

According to WHO Traditional Medicine is the essence of knowledge, ability, and processes based on ideas, beliefs, and knowledge. It is used in health care and to prevent, diagnose, promote or treat physical and mental illness.

The World Health Organization defines traditional medicine as a natural, plant-based substance with little or no industrial processing that has been used to treat illness within local or regional medical procedures.

Traditional medicine and its preparations have been widely used for thousands of years in developing and developed countries because of their natural origin and minimal side effects.

These drugs were initially based on a combination of raw drugs such as ingredients, additives, powders, and other herbal remedies.

The use of plants for medicinal purposes precedes human history and forms the root of many modern trees.

The clinical, pharmaceutical, and chemical studies of these folk remedies, which are widely available from plants, were the basis of many early drugs such as aspirin (village bark), digitoxin (from foxglove), morphine (opium poppy), and -quinine. (from cinchona bark), and pilocarpine (Jaborandi)

Herbal medicine is still a pillar for about 75 - 80% of the world's population, especially in developing countries, in basic health care. This is mainly due to the common belief that herbal remedies have no side effects other than that they are cheaper and available locally.

1.1 Plant Profile

Plant name – Ginger

Vernacular Name – Adark

Synonym- Zingiber, Sunthi, Zingiberis, Zingiber officinale, Family – Zingiberaceae .

Biological source –

Ginger Consists of whole cut, dried scrapped rhizomes of Zingiber officinale.

It contains not less than 0.8 percent of total gingerols on dried basis.

Geographical source –

It is said to be native of South East Asia, but it cultivated in Caribbean islands, Africa, Australia, Jamaica, Taiwan.

More than 35% of the World's production is from India.

1.2 Taxonomical Classification

- Division : Spermatophyta
- Class : Angiospermae
- Subclass : Monocotyledonae
- Order : Musales
- Family : Zingiberaceae
- Genus : Zingiber
- Species : officinale

II. MATERIAL AND METHODS

2.1 Selection of Plant

In the present study, I have selected the ginger rhizome

2.2 Collection of Plant Material

Fresh rhizomes of ginger were collected from local farms located along Junnar.

2.3 Preparation of Powder

The rhizomes were shade dried until all the water molecules evaporated and the rhizomes became dried for grinding. The foreskin of the rhizomes were removed and it was later ground using electrical laboratory blender into a very fine powder and kept in an airtight container with proper labeling prior to analysis.



Figure: Ginger Rhizome



Figure: Ginger Powder

2.4 Preliminary Phytochemical Tests

By performing the Preliminary phytochemical analysis on various fraction. Detect presence of various chemical constituents by performing chemical organic confirmatory tests for alkaloids, glycosides, tannins and phenolic compound, flavonoids, proteins, steroids and sterols was carried out using standard procedure.

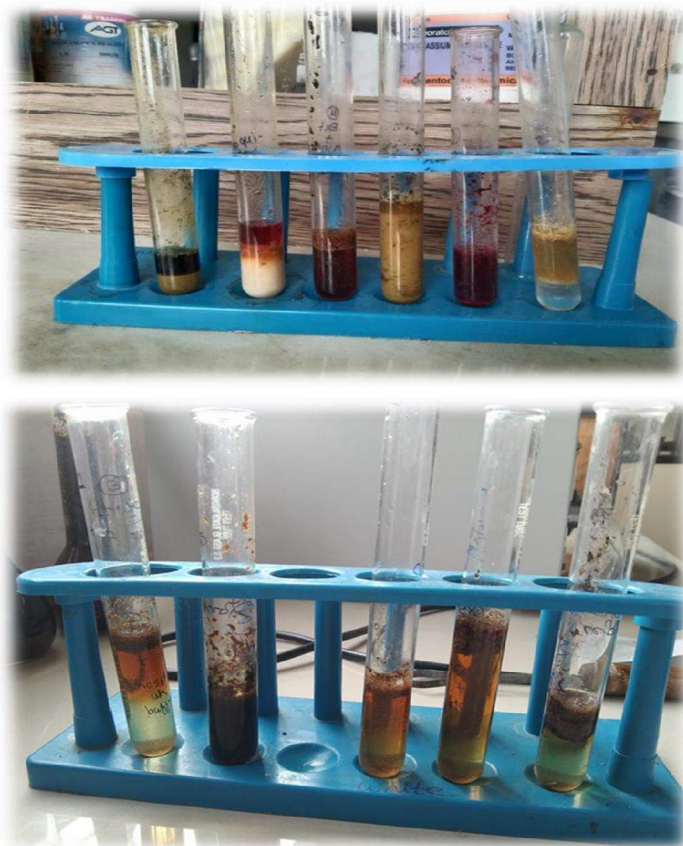


Figure: Preliminary Test

2.5 Qualitative Phytochemical Screening of Ginger

Phytochemical screening was carried out ethanol, chloroform, ethyl acetate, acetone and water extracts of ginger extracts using standard procedures

- **Test for Tannin:** 0.5 g of plant extract was mixed with 2mL of water and heated on water bath. The mixture was filtered and 1mL of 10% FeCl₃ solution was added to the filtrate. A blue-black solution indicates the presence of tannin.
- **Test for Flavonoid:** 5 mL of distilled water and about 0.2 g of plant extract were mixed thoroughly. And 1 mL of 1% AlCl₃ solution was added and shaken. A light yellow precipitate indicates the presence of flavonoids.
- **Test for Phenol:** About 0.5 g of plant extract was added to 1 mL of 10% FeCl₃ solution. A deep bluish green coloration was an indication for the presence of phenol.
- **Test for Saponin:** About 0.2 g of plant extract was shaken with 4 mL of distilled water and then heated to boil on a water bath. Appearance of creamy mass of small bubbles (Frothing) shows the presence of Saponin .
- **Test for Ascorbic Acid:** About 0.5 g of plant extract was added to 2 mL of acetic acid and it was shaken for 3 minutes, and then filtered. Few drops of 2, 6-Dichlorophenolinddophenol solution were added to the filtrate. The presence of faint pink color confirms that ascorbic acid is present.
- **Test for Reducing Sugar:** 2 mL of distilled water and 0.2 g of plant extract were mixed together and thoroughly shaken in a test tube. 1 mL each of Fehling solution A and B were added to the mixture. A brick-red precipitate

at the bottom of the test tube confirms the presence of reducing sugar.

- **Test for Resin:** 0.2 g of plant extract and 2 mL of acetic anhydride were mixed together. A drop of concentrated sulphuric acid was added to the mixture. A purple or violet colour indicate the presence of resin.
- **Test for Balsams:** 0.2 g of plant extract and 2 mL of ethanol were mixed together and two drops of alcoholic ferric chloride solution was added. A dark green coloration indicates the presence of balsams.
- **Test for Chalcone:** 0.2 g of plant extract and 2 mL of 1% ammonium hydroxide were mixed together. The appearance of reddish colour shows the presence of chalcone.
- **Test for Glycoside:** 0.2 g of plant extract and 2.5 mL of dilute sulphuric acid were mixed together and boiled for 15 minutes, cooled and neutralized with 5 mL each of Fehling solution A and B. The formation of brick red precipitate confirmed glycoside.
- **Acidic Test:** 0.2 g of plant extract and sufficient distilled water were mixed together and warmed on hot water bath and cooled. A wet litmus paper was dipped inside the solution
- **Test for Volatile Oil:** 0.2 g of plant extract and 2 mL of ethanol were mixed together and few drops of ferric chloride solution was added. A green coloration indicates volatile oil.
- **Test for Anthraquinones:** 0.2 g of plant extract and 5 mL of chloroform were mixed, shaken together for 5 minutes. The mixture was filtered. 2.5 mL of 10% ammonium hydroxide was added to the filtrate. A bright pink, red or violet colour at the upper layer indicates free anthraquinones.
- **Test for Steroids (Salkowski Test):** 0.2 g of plant extract and 2 mL of chloroform were added together, 2 mL of concentrated sulphuric acid was added to form a layer. The formation of a violet/blue/green/reddish-brown ring at the interface indicates the presence of steroidal ring.

2.6 Ash Content

- 2 gm. of the sample was weighed into porcelain crucible, this was transferred into the muffle Furnace at 550°C and left for about four hours.
- About the time it had turned to White Ash
- The crucible and its content were cooled to about 100 degree C in air, then to room temperature in a desiccator and weighed.

Formula -Ash Content = Weight of ash / original weight of sample



Figure: Ash Content

III. RESULTS

Table 1: Preliminary phytochemical screening of *Zingiber officinale*

Sr. No	Chemical test	observation
1.	Test for carbohydrate a) Molish's test: b) Fehling test: c) Benedicts test:	+ - -
2.	Test for monosaccharaides; a) Barfoed's test:	-
3.	Test for pentose sugar:	-
4.	Test for hexose sugar: a) selwinoff's test:	+
5.	Test for non-reducing sugar; a) Benedict's test:	-
6.	Test for non-reducing polysaccharides: a) Iodine test: b) Tannic acid test for starch	+ +
7.	Alkaloid	+
8.	Glycoside	+
9.	Saponin	+
10.	Flavanoids	+
11.	Protein	+
12.	Tannins	-
13.	Carbohydrates	+
14.	volatile oil	+
15.	amino acid	+

3.1 Physicochemical Studies

- The physicochemical parameters total ash value, acid insoluble ash value water soluble ash value and moisture content which was determined to be not more than 4.9%, 1.35%, 1.67%, 4.41 respectively .
- The extractive values (ethanol, methanol, petroleum ether, chloroform, aqueous) which were determined to be not more than 4.0%, 7.79%, 1.8%, 1.2% and 10.8% respectively

Determination of Ash Value

- Ash content is a criterion to judge the identify or purify of drugs. The total ash value of Ginger powder was found to be **7.2% w/w** Acid soluble ash.
- Water soluble ash.

Table 2: Ash Value of ginger powder

Sr.no.	Parameters	Value % of ginger powder
1	Total Ash	7.2 %
2	Acid Soluble ash	1.35%
3	Water soluble ash	1.67 %

Table 3: T.S. of ginger rhizome

Reagent	Observation	Characteristics
Phloroglucinol + conc. hydrochloric acid	Pink	vascular bundle, sclerenchymatous fibres.
dil. Iodine solution	Blue	starch

IV .CONCLUSION

Ginger is used to treat various medical conditions. Morphological, Pharmacological and Anatomical studies of plant parts will be able to identify Crude wood. Information obtained from initial phytochemical experiments will be helpful in the diagnosis Extract the wisdom of the drug. Ash values, output prices can be used to detect adultery. Chemical and metabolic analysis reveals that ginger forms hundreds of compounds And metabolites. Antimicrobial properties are due to the presence of compounds such as thymol, eugenol, 1, 8-cineole, α - and β -pinenes, linalool, and α -terpineol. Kakhulu Too much ginger can contaminate blood vessels.

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