

Preliminary phytochemical studies on *Zingiber Officinale*, natural and enhanced varieties

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ABSTRACT

The current investigation subjected for the extraction using alcohol of different varieties of Zingiber with the Reflux apparatus. The extract was then subjected to preliminary phytochemical screening for the detection of the class of compounds. The extract contains a variety of secondary metabolites which are responsible for its biological activity.

INTRODUCTION

Traditional medicine is the synthesis of therapeutic experience of generations of practicing physicians of indigenous systems of medicine. Traditional preparation comprises medicinal plants, minerals and organic matters etc. Herbal drug constitutes only those traditional medicines that primarily use medicinal plant preparations for therapy [1]. The pharmaceutical industries are growing day by day with the increase of the patients in India. In India about 75% of the patients are depending allopathic systems of medicines¹. Even though the allopathic medicines are talented of curing the diseases up to an extent a number of medicines possess side effects[2]. Pharmacognosy provides the tools to identify, select and process natural products destined for medicinal use. Usually, the natural product compound has some form of biological activity and that compound is known as the active principle - such a structure can act as a lead compound (not to be confused with compounds containing the element lead). Many of today's medicines are obtained *directly* from a natural source A decoction of the wood is used in the treatment of fevers, flatulence, pulmonary and urinary disorders, rheumatism, piles, kidney stones, insomnia, diabetes etc[3]. The plant yields a medicinal essential oil by distillation of the wood, it is used in the treatment of phthisis, bronchitis, blennorrhagia and skin eruptions[4].

MATERIALS AND METHODS

COLLECTION AND AUTHENTICATION OF SAMPLE

The samples were collected from IISR (Calicut) and authenticated from the Taxonomy Department of Uwin Life Science, Malappuram. The sample specimen was stored in Uwin Life Science, Malappuram. The collected specimens were then coarsely powdered[5].

STEAM DISTILLATION

EXTRACTION

The dried and powdered samples were extracted separately by using Absolute Alcohol. The extraction was carried out by refluxing method and can be used to check antioxidant activity of the samples[6].

PRELIMINARY PHYTOCHEMICAL SCREENING**1. Test for Alkaloids****a) Dragendorff's test**

8g of $\text{Bi}(\text{NO}_3)_3 \cdot 5\text{H}_2\text{O}$ was dissolved in 20 ml of HNO_3 and 2.72g of KI in 400ml of water. These were mixed and allow to stand when KNO_3 crystals out. The supernatant was decanted off and made up to 100ml with distilled water. The alkaloids were regenerated from the precipitate by treating with sodium carbonate followed by extraction of the liberated base with ether. To 50ml of alcoholic solution of extract was added to 2ml of HCl. To this acidic medium 1ml of reagent was added. An orange red precipitate produces immediately indicates the presence of alkaloids.

b) Wagner's test (Iodine- Potassium iodide solution)

1.2 gm of Iodine and 2gm of H_2SO_4 and the solution was diluted to 100ml. 10ml of alcoholic extract was acidified by adding 1.5% v/v of HCl and a few drops of Wagner's reagent. Formation of yellow or brown precipitate confirmed the presence of alkaloids.

2. Test for Glycosides

A small amount of alcoholic extract was dissolved in 1ml of water and the aqueous NaOH solution was dissolved in 1ml of water and the aqueous NaOH solution was added. Formation of yellow color indicates the presence of glycosides.

3. Test for Tannins**Ferric chloride test**

To 1-2 ml of aqueous extract few drops of 5% aqueous FeCl_2 solution was added. A bluish black color which disappears on addition of a few ml of H_2SO_4 , there is no formation of the yellow brown precipitate.

4. Test for Flavanoids

In a test tube containing 0.5ml of alcoholic extract, 5-10 drops of dilute HCl and small piece of ZnCl or magnesium were added and the solution was boiled for a few minutes. In the presence of flavanoids, reddish pink or dirty brown color was produced.

5. Test for Saponins

In a test tube containing 0.5ml of aqueous extract a drop of sodium bicarbonate was added. The mixture was shaken vigorously and kept for 30 minutes. A honey comb like froth was formed and it showed the presence of saponins.

6. Test for Steroid**Salkowski test**

To 2ml of chloroform extract, 1ml of concentrated sulphuric acid was added carefully along the sides of the test tubes. A red color was produced in the chloroform layer in the presence of steroids.

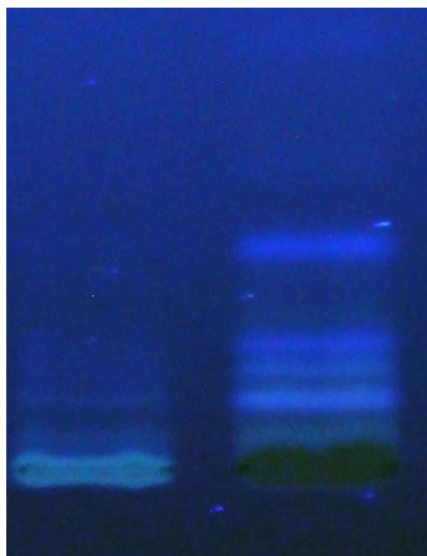
7. Test for Phenols**Ferric chloride**

To 10ml of alcoholic solution of extract, 2ml of distilled water followed by drops of 10% aqueous FeCl_3 solution were added. Formation of blue or green indicates the presence of phenols[7].

RESULTS AND DISCUSSION

TESTS	RESULTS Normal	Results – Varada variety
Alkaloids	-	-
Flavanoids	+++	+++
Saponins	-	-
Glycosides	—	—
Steroids	—	—
Tannins	-	-
Carbohydrates	++	++
Phenols	+++	+++

Preliminary Screening of the two varieties of Zingiber



TLC Profile of two Zingiber Varieties

CONCLUSION

From the present study we conclude that the enhanced variety of the Zingiber (Varada) contains a variety of secondary metabolites like flavonoids, phenolics. Thus this research work on the different variety reveals the chemical content of the two varieties. Here we conclude that the variety which is enhanced will show biological activity is due to the presence of the promising class of compounds. The TLC profile also shows the enhanced profiles of the varieties.

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