

Qualitative Test of Ethanolic Extract of Climber *Coccinia indica* for Primary Metabolites

Abstract

Coccinia indica is climber, perennial medicinal plant belonging to family Cucurbitaceae. A qualitative assessment of ethanolic extract of different parts of the plant species revealed that they contain protein, carbohydrates and lipids

Keywords: Metabolites, Alkaloid, Phenol, Glycoside, Turpenes, Antibiotic.

Introduction

Metabolic substances are an important part of plant life, without which biological processes cannot be imagined. In plant cells, biochemical processes occur in the coordinated and balanced form. The bio molecules produced by these pathways are termed metabolites. The metabolites can be mainly divided into two types such as primary metabolites and secondary metabolites. The primary metabolites are essential for the survival of the plants life. These products is result of the primary metabolic pathways, which include sugars, proteins, amino acids, fatty acids, fats, pyrimidines and purines. These cells are produced in large amounts. Secondary metabolites are non-essential for basic biochemical and survival of plants process. Secondary metabolic products, such as alkaloid, phenol, glycoside, turpenes, and gums antibiotics and so on are produced as a result of the secondary metabolic pathway. They work in plants only for safety, accumulation of food, energy, and resistance against various pathogens. They do not make special contributions to the life processes of plants but make any plant species special. Some of the products derived from that plant are very useful economically in therapeutic practices for human and animals. Plants products the most wonderful gift from nature has been used as drugs. Some plant species which are across different ethnic groups various types of drugs are obtained from are known as medicinal plants (Yadav *et al*, 2010).

Coccinia indica (synonym *Coccinia grandis*) Wight and Arn (Family Cucurbitaceae) which is a climbing or prostrate, much branched, perennial herb commonly known as *kundri* is also a medicinal plant. It is distributed in both wild and cultivated states on the plains of India. The present research paper deals with and qualitative test of the ethanolic extract of climber *Coccinia indica* for primary metabolites.

Aim of the Study

1. To prepare extract of different parts (leaves, stem, fruit) of *Coccinia indica* on organic solvent ethanol.
2. Identification of primary metabolite in the extract to facilitate further study for human welfare.

Material and Methods

Plant Collection

Coccinia indica was collected from in and around catchment area of Mej River. The identity of the plant species was established by Herbarium chamber Government College, Bundi by author department of botany.



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**Coccinia Indica Whole Plant****Preparation of Plant Extract**

Fresh leaves stem and fruit of *Coccinia indica* were washed thoroughly tap water and were dried in hot air oven at 40-50° c for a week. 30gm of dried powder was extracted for 24 hours in 300 ml solvent (ethanol 99%). Repeated extraction was done with the some solvent till colourless solvent was obtained. The condensed extract was used for screening of primary metabolites.

Dried Leaves**Powder of dried Stem****Dried Fruit****Primary Metabolites Analysis****Test for Carbohydrates****Molisch Test**

The test was carried out by following the method Ramakrishnan *et al.* 1994. 2 ml of aliquot of the extract was treated with 2 drops of Molisch reagent. After shaking and holding test tube in slanting position 2 ml concentrate Sulphuric acid along the side of the test tube. The reddish violet ring at the junction of two solutions indicates presence of Carbohydrates.

Test for Proteins**Millon's test**

The test was carried out by following the method Fisher, 1968; Ruthmann, 1970. 2 ml of aliquot of the extract was treated with 2 drops of Millon's reagent in a test tube. The test tube a white creamy precipitate appeared which changed to brick red on heating. It the indicates the presence of proteins.

Biuret Test

The test was carried out by following the method Gahan, 1984. An aliquot of 2 ml of filtrate is treated with few drops of copper sulphate solution. To this, 1 ml of ethanol (95%) is added, followed by excess of potassium hydroxide pellets. Pink colour in the ethanolic layer indicates the presence of proteins.

Test for Fats**Spot Test**

The test was carried out by following the method Kokate, 1999. A small quantity of extract is pressed between two filter papers. Oil stain on the paper indicates the presence of fixed oil.

Result and Discussion

Table displays result of qualitative analysis of ethanolic extract of different part of *Coccinia indica* which reveal that all the extracted plant material (Leaves, Stem, Fruit) of *Coccinia indica* possess carbohydrates. The presence of carbohydrates was ascertained by Molisch test. The result reveals that fruit extract has more quantity of carbohydrates as it exhibited higher degree of precipitation (+++). The stem and leaves extract however showed moderate degree of precipitation.

The presence of protein in the extract was ascertained by Millon test and Biuret test. Fruit extract exhibited presence of protein with higher degree of precipitation (+++) in both Millon and Biuret test. However leaf extract showed presence of protein with higher degree of precipitation (+++) in Millon test but lasser degree of precipitation (+) in Biuret test. The variation in degree of precipitation was also evident in both test for stem extracted where the Millon test exhibited moderate degree of precipitation (++) as compared to the Biuret test which showed lasser degree (+) of precipitation.

Soap test was used to ascertained presence of lipids in all these ethonolic extract (leaf, stem, fruit). The test showed presence of lipids in fruit leaves and stem of *Coccinia indica*.

Present finding are supported by studies of Khatun *et al.* (2012) who found *Coccinia indica* contain bioactive constituents such as Tannins, Saponins, Phenols, Flavonoides and terpenoides. Yadav *et al.*, (2010),

Shalini *et al.*,(2014), Deshpande *et al.*,(2011), Bhaduria *et al.*,(2012), Rahman *et al.*, (2015), Deokate & Khadabadi,(2012), Sakharkar & Chauhan, (2017) also evaluated different species of *Coccinia* which also support present research work.

Table -1

S.No.	Phytochemical	Name of Test	Plant Part	Observation
1	Carbohydrates	Molisch test	Leaves	++
			Stem	++
			Fruit	+++
2	Proteins	Millon test	Leaves	+++
			Stem	++
			Fruit	+++
		Biuret test	Leaves	+
			Stem	+
			Fruit	+++
3	Fats	Soap test	Leaves	+++
			Stem	+
			Fruit	+++



Remarking An Analisation**Conclusion**

Present research highlights the presence of primary metabolite like carbohydrates, protein and lipid. *Coccinia indica* a medicinal plant species and further study may prove beneficial for human welfare.

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