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Phytochemical Analysis of Curry Leaves

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Abstract: ***The present study was done to find out the Phytochemicalconstituents present in the leaf powder of curry leaves. The study showed the presence of alkaloids, flavonoids, glycosides, steroids, cardiac glycosides, saponins, phenols, tannins, terpenoid, quinone, and amino acids & protein in all three solvent extract i.e. methanol, ethanol and aqueous.***

Keywords: Phytochemical, Antimicrobial activity, MurrayaKoenigii

1. Introduction

Curry leaves, botanical name MurrayaKoenigii, Spices – M. Koenigii at it belongs to the Rutaceae family. Curry leaves also known as karieppilai, karipatta, sweet neem leaves and kadipattta etc. it is generally used for flavoring the dishes like – poha, sambhar, dokhla, dal, upma, nariyal chutney and kadi. Gujarati's and south Indians fond of these leaves they maximum used it there routine dishes. Curry leaves are rich in calcium, phosphorous, iron, vitamin like C, A, B, E. It has good medicinal qualities like fight with infection, improve hair and skin qualities and also help in controlling the blood sugar level at the same time improve the digestion.

The leaves have light strong and feebly acidic taste. These qualities like flavor, taste and medicinal qualities will remain even after drying. The present study was designed to investigate the phytochemical properties of dry powder of curry leaves.

2. Material and Methods

Collection of plant source (Curry leaves)

Curry leaves were collected from the local houses of Udaipur city. These were washed thoroughly in order to remove the dirt and dust. Then dry in shade so that it is maintaining medicinal qualities. The dried leaves were crushed with the help of mixer grinder. This powder of curry leaves was stored in airtight jar and used for further experiments.

Preparation of extract

The experiment was done in three solvents i.e. ethanol, methanol and aqueous. 1 gm plant source was dissolved in 25 ml. solvent of 70 % concentration (ethanol and methanol) then all the three prepared solution were kept for 24 hr. at room temperature in a closed tubes. After 24 hr. centrifuge and filtered this solution usingwattman filter paper then kept in an airtight bottles at 4°cfor further experiment. This fine powder was analysed for the phytochemicals constituentspresent in it.

Preliminary Phytochemical Analysis

The leaf powder of the study plant was dissolved in various solvents and the preliminary phytochemical tests were carried out.

Phytochemical screening

Alkaloids [Mayer's test]:1.36gm of mercuric chloride dissolved in 60ml and 5gm of potassium iodide were dissolved in 10 ml of distilled water respectively. These two solvents were mixed and diluted to 100ml using distilled water. To 1ml of acidic aqueous solution of samples few drops of reagent was added. Formation of white or pale precipitate showed the presence ofalkaloids.

Flavonoids: In a test tube containing 0.5ml of alcoholic extract of the samples, 5 to 10 drops of diluted HCl and small amount of Zn or Mg were added and the solution was boiled for few minutes. Appearance of reddish pink or dirty brown colour indicated the presence of flavonoids.

Glycosides: A small amount of alcoholic extract of samples was dissolved in 1ml water and then aqueous sodium hydroxide was added. Formation of a yellow colour indicated the presence of glycosides.

Steroids [Salkowski's test]: About 100mg of dried extract was dissolved in 2ml of chloroform. Sulphuric acid was carefully added to form a lower layer. A reddish brown colour at the interface was an indicative of the presence ofsteroidal ring.

Cardiac glycosides [Keller killiani's test] : About 100mg of extract was dissolved in 1ml of glacial acetic acid containing one drop of ferric chloride solution and 1ml of concentrated sulphuric acid was added. A brown ring obtained at the interface indicated the presence of a de oxy sugar characteristic of cardenolides.

Saponins: A drop of sodium bicarbonate was added in a test tube containing about 50ml of an aqueous extract of sample. The mixture was shaken vigorously and kept for 3min. A honey comb like froth was formed and it showed the presence of saponins.

Resins: To 2ml of chloroform or ethanolic extract 5 to 10ml of acetic anhydrite was added and dissolved by gentle heating. After cooling, 0.5ml of H2SO4 was added. Bright purple colour was produced. It indicated the presence of resins.

Phenols [Ferric Chloride Test]: To 1ml of alcoholic solution of sample, 2ml of distilled water followed by a few

drops of 10% aqueous ferric chloride solution were added. Formation of blue or green colour indicated the presence of phenols.

Tannins [Lead acetate test]: In a test tube containing about 5ml of anaqueous extract, a few drops of 1% solution of leadacetate was added. Formation of a yellow or red precipitate indicated the presence of tannins.

Terpenoid: 2ml of chloroform and 1ml of conc. H2SO4 was added to 1mg of extract and observed for reddish brown colour that indicated the presence of terpenoid.

Test for Quinone: To 1ml of extract, a few drops ofconcentrated hydrochloric acid were added. A yellowishbrown colour was observed that showed the presence ofquinone.

Test for Proteins Ninhydrin Test (Acetone): Ninhydrin was dissolved inacetone. The leaf extract was treated with ninhydrin andobserved for the formation of purple colour.

3. Result and Discussion

Phytochemical analysis of three different extracts of curry leaves i.e. Aqueous, Methanol, and Ethanol were explored. Screening for alkaloids, flavonoids, glycosides, steroids, cardiac glycosides, saponins, phenols, tannins, terpenoid, quinone, and amino acids & protein are showed in table.

Table 1: Phytochemical Analysis on the leaf extracts

Phytochemical constituents	Aqueous	Methanol	Ethanol
Alkaloids	++	+	+
Flavonoids	_	_	_
Glycosides	++	+	++
Steroids	+	+	+
Cardiac glycosides	_	+++	+++
Saponins	_	_	_
Phenols	++	_	++
Tannins	+	+	+
Terpenoid	+	++	+
Quinone	++	_	_
Amino acids & protein	_	_	_

+ = present ++ = moderately present +++ =Appreciable amount

Out of 12 tested phytochemical constituent'salkaloids, glycosides, steroids, tannins and terpenoid were present in all extracted sample. Cardiac glycosides were present only in methanol and ethanol extract of plant leave sample. Phenolic compound showed their positive result in aqueous and ethanolextracts,Quinone only found in aqueous medium. Flavanoides, sponins, amino acid showed the negative result in all the three solventi.e.aqueous, methanol and ethanol.

4. Conclusion

Curry trees grow to 4-6 meters tall, and their trunk grows to 40 centimeters in diameter. Small black, shiny berries that grow on the tree can be eaten, but their seeds are poisonous. Curry leaves are essential in Indian dishes, commonly used as seasoning, these leaves adds a special aroma to an every dish. Leaves are packed with not only aroma but also with lots of nutrients and medicinal qualities.The present study was carried out toevaluate the phytochemicals present in the curry leaf powder. The phytochemical study showed the presence of alkaloids, glycosides, steroids, tannins and terpanoids were present in all three solvents that were aqueous, methanol and ethanol.

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