O. Sita Kumari*1, Nirmala Babu Rao2

1Dept of Botany, RBVRR Women’s College, Hyderabad, Telangana, India.
2Department of Botany, University College for Women, Osmania University, Hyderabad, Telangana, India.

ABSTRACT
Ellitaria cardamomum is an underground rhizome. The extract from leaves of ellitaria cardomomum are investigated for phytochemical and anti oxidant activity. Leaf extract with distilled water revealed the presence of anthraquinones, flavonoids, alkaloids, terpenoids, saponins, glycosides, cardiac- glycosides except tannins. In view of antioxidant properties responsible for its popular and wide traditional use.

KEYWORDS: Ellitaria cardamomum, phytochemistry, flavonoids, antioxidants, natural medicines and phyto-chemical parameters.

INTRODUCTION
Cardamom is commonly known as queen of spices for the versatile use in culinary practice. It is a perennial shrub with fleshy, thick, lateral roots which can grow to a high of eight feet. Cardamom oil is used in food perfumery and liquors pharmaceutical industries as a flavor. In medicine, it is used as a power full antiseptic, stimulant carminative, stomachic, expectorant, anti-spasmodic, aromatic and diuretic. It spectrum of bacterial pathogens responsible for respiratory, urinary tract, abdominal infection and gastrointestinal including gram negative and gram positive bacteria. Ciprofloxacin is a second generation flourquinolone antibiotics.[1]

Elettaria cardamomum is an important member of family Zingiberaceae. Small cardamoms are popularly known as ‘chhoti elaichi’ or the ‘true cardamom’ or ‘Ela’. Chhoti elaichi has been the second most important ‘National Spice” of India and is also rightly known as the ‘Queen of Spices’. This is originated from India and Sri Lanka and is commonly cultivated in southern India. Fruits and seeds of the Cardomum economically important parts of the plant.
The main compound are 1,8-cineole (representing 50% or more), with smaller amounts of limonene, α-terpenyl acetate, α-terpineol, borneol, camphor and α-pinene. Indian cardamom is low in fat and high in protein, iron, and vitamins B and C. Seeds of Cardamom are with their sweet and spicy aroma, used in aromatherapy to stimulate energy. Cardamom also acts as Ayurvedic aphrodisiac and remedy in case of digestive problems, and urinary complaints, asthma, bronchitis, and several other human ailments. The plant also stomachic, and appears that notes of cultivation of this plant in Iraq are based on misde-ntications. The oil extracted from the fruits of Elettaria cardamomum is used in pharmacy and perfumery. Cardamom oil is effective as an antioxidant and can increase levels of glutathione, a natural antioxidant in body. It is an herbaceous non-perishable perennial crop whose valuable parts, the seeds are mostly useful as powder or whole pulses in beverages such as tea and coffee, baked foods and confectionaries, custards, meat products, spice mixtures like curries, as flavors in biscuits, wines and liqueurs. Both the root and fruit are also used by the Cambodians in their medicines. The fruit is considered a tonic, stimulant, emenagogue and stomachic. Internally, it is given in cases of uterine complaints and liver disease. Externally, it is also applied to tumours of the uterus. It works as a laxative and soothes colic, wind, dyspepsia and nausea, even caused during pregnancy. Cardamom oil comforts the digestive system, coughs and used as a general tonic. Gastroprotective activity of E. cardamomum was found in the petroleum ether soluble extract which inhibited lesions by nearly 100% at 12.5 mg/kg in the aspirin-induced gastric ulcer. Methanolic extract also possess protective effect against gastric problems. Ethanolic extract of E. cardamomum possess antibacterial effect at the dose of 512μg/mL11. Toxicity of the extract was observed at 0.3 mg/g, which showed inflammation in brain, oxidative stress and cells necrosis in heart. The use of E. cardamomum as spice should not exceed the 0.003 mg/g since at this amount no negative effects were observed.

**MATERIALS AND METHODS**

Plant material was collected from the college campus. Chemicals such as wagnes reagent, chloroform, 2% H2SO4, Concentrated sulphuric Acid, 10% Lead acetate, Benedict’s reagent, 0.1% ferric chloride, Fehling’s solution, dilute NaOH, 2% HCL, 10% Ammonia, 10%HCL, distilled water, Ethyl Alcohol are provided by the management of the college.
Preparation of Solutions

A) Fehling’s Solution: - A mixture of equal volume of copper sulphate, sodium potassium tartarate and sodium hydroxide is prepared in a beaker.

B) Wagner’s Reagent: - Mixing 2gm of Iodine, 6gm of potassium iodide in 100ml of water.

Collection of Sample: Healthy leaves of ellataria cardamomum were taken and washed under running water to remove the dust and other external pollutants. The plant leaves were air dried for few days (normally 15 to 21 days).

Grinding the Sample: The dried leaves are grinded to a fine powder in a mixer and the powder is collected in clean polythene bags.

Preparation of Plant Extract with Distilled Water: Taken 10 gms of leaf powder and added 50ml of distilled water stirred it constantly for 30 minutes and the solution was kept at room temperature for 24 hours (minimum) and then filtered. The filtered solution is again filtered with watman filter paper No.3 and then it was stored at 4 degrees centigrade (in a freezer) until use.

Tests and Results

A) Phyto Chemical Screening: Chemical test is carried out on the distilled water extract of ellataria cardamomum using standard procedures to identify the constituents.

B) Procedure for Alkaloids: 2ml of extract is taken and added 2ml of wagner’s reagent a brownish precipitate indicate the presence of alkaloids.

C) Cardiac Glycosides: 2ml of extract is dissolved with 2ml of chloroform and concentrated sulphuric acid is carefully added to form a layer. Deep reddish brown colour at the inter face of steroid ring indicates the presence of cardiac glycosides.

D) Flavonoids: 2ml of extract is treated with 2 ml of 10%lead acetate. Brownish green colour indicates the presence of flavonoids.

E) Saponins: 2ml of extract is dissolved with 2ml of Benedicts reagent. Blue black ppt indicates the presence of saponins.

F) Tannins: 2ml of extract is treated with 0.1% of ferric chloride. Ther was no brownish green ppt found hence tannins were absent.
G) **Terpenoides**: (Salkowski test) 2ml of extract is dissolved with 2ml of chloroform and concentrated sulphuric acid is carefully added to form a layer. A reddish brown colour indicates the presence of terpenoids.

H) **Anthraquinones**: 1ml of extract is boiled with 10% HCL for few minutes in a water bath. It is filtered and allowed to cool. Equal volume of CHCl3 is added to the filtrate few drops of 10% Ammonia is added to the mixture and heat. Formation of rose pink colour indicates the presence of anthraquinones.

I) **Glycosides**: The extract is hydrolysed with HCL solution and neutralised with NaOH solution. A few drops of Fehlings solution A&B are added red precipitate indicates the presence of glycosides.

**CONCLUSION**

The preliminary phytochemical analysis of ethanolic extract of Elettaria cardamomum showed the presence of flavonoids, tannins and phenolic compounds, terpenoids, alkaloids, saponins and phytosterols, carbohydrates and proteins, fixed oils and fatty acid. This explains the medicinal properties shown by Cardamomun in various studies.

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