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IN VITRO ANTIOXIDANT ACTIVITIES OF CHLOROFORM EXTRACT OF *CTENOLEPSIS CERASIFORMIS.*

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Abstract:

The sources of many of the new drugs and active ingredients of medicines are derived from natural products. The starting point for plant-based new drug discovery should be identification of the right candidate plants by applying traditional system of medicine. In many cases, the people claim the good remedy of such kind of plant -based products or herbal products. Chromatographical methods of separations of bioactive principles from the plants are the most commonly used technique for the identification, quantification and characterisation purpose. Herbal medicinal plants are getting the paramount importance in the field of therapeutics, as most of the pharmaceutical industries are depend in on plants or plant materials for the production of pharmaceutical compounds. Therefore, it is of interest to investigate the antioxidant activity by DPPH-radical scavenging method in vitro. The results of the present study indicate that the chloroform extract of C.cerasiformis possess the strong antioxidant activities.

Key words: *Ctenolepsis cerasiformis, Antioxidants, Bioactive molecules, Free radicals, Pharmaceutical compounds.*

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INTRODUCTION:

Oxidative stress is an important risk factor in the pathogenesis of numerous chronic diseases. Free radicals and other reactive oxygen species are recognized as agents involved in the pathogenesis of sicknesses such as asthma, inflammatory arthropathies, diabetes, Parkinson's and Alzheimer's diseases, cancers as well as atherosclerosis [1]. Reactive oxygen species are also said to be responsible for the human aging. An antioxidant can be broadly defined as any substance that delays or inhibits oxidative damage to a target molecule. The main characteristic of an antioxidant is its ability to trap free radicals [2]. Antioxidant compounds like phenolic acids, polyphenols and flavanoids scavenge free radicals such as peroxide, hydro peroxide or lipid peroxyl and thus inhibit the oxidative mechanisms that lead to degenerative diseases. Herbal plants considered as good antioxidant since ancient times [3]. *Ctenolepsis cerasiformis* is a medicinal plant distributed in south india and belongs to the family of cucurbitaceae and spreading on low shrubs or climbing; stem subfiliform, elongate, much branched, grooved and angled, glabrous except the sparse hairs at the node. Tendrils, slender, elongated, simple. Leaves 3.5-10 cm long and almost equally broad, lamina broadly ovate-cordate in outline, scabrid-punctate above and beneath, scabrid hairs pointing forward on nerves and margins, palmately 3-(rarely 5-)-lobed, segments usually ovate-oblong, acute, narrow at the base, the lateral segments often with apparent mucro. Petiole 2-4 cm long; stipular bracts 7-15 mm long, more or less suborbicular, ciliate with hairs as long as the breadth of bract. Flowers minute (petals spreading, ovate-ligulate, almost free, 1.5 mm long, 1 mm broad); male flowers 5-10 at the apex of 2-4 cm long peduncles, pedicel ebracteate, 2-3 mm long; female flowers solitary on short peduncles; ovary globose, slightly beaked, 2 mm long, 1.5 mm across. Fruit globose or oblate, glabrous, c. 1.3cm in diameter. Seeds 2, ovoid, c. 8 mm long, 5 mm broad, ovate-pyriform, plano-convex, not bordered, smooth, edges compressed. Hence, it is of interest to investigate the phytochemical profile of chloroform extract of *Ctenolepsis cerasiformis* were undertaken. Our results indicate that the presence of various Phytochemicals.

MATERIALS AND METHODS:

Collection of medicinal plants

The Indian medicinal plant *Ctenolepsis cerasiformis* were collected from the medicinal garden, Chennai, India. The parts of the plants were authenticated by the botanist.

Plant Materials

The aerial parts of Chloroform extract of *Ctenolepsis cerasiformis* were used for this study.

Preparation of Plant extracts

The extraction of the plant material was carried out using known standard procedures. The plant materials were dried in shade and powdered in a mechanical grinder. The powder (25.0 g) of the plant materials were initially defatted with petroleum ether (60-80°C), followed by 900 ml of hydroalcohol by using a Soxhlet extractor for 72 hours at a temperature not exceeding the boiling point of the solvent. The extracts were filtered using Whatman filter paper (No.1) while hot, concentrated in vacuum under reduced pressure using rotary flask evaporator, and dried in a desiccator. The hydroalcoholic extract yields a dark greenish solid residue weighing 5.750 g (23.0% w/w). More yields of extracts were collected by this method of extractions. The extracts were then kept in sterile bottles, under refrigerated conditions, until further use. The dry weight of the plant extracts was obtained by the solvent evaporation and used to determine concentration in mg/ml. The extract was preserved at 2- to 4°C.

Chemicals and Reagents

All chemicals were used for this project were purchased from M/s. Sigma Chemicals, USA.

Determination of Antioxidant activity (DPPH free radical scavenging activity)

The antioxidant activity of the plant extracts was examined on the basis of the scavenging effect on the stable DPPH free radical activity [4]. Ethanolic solution of DPPH (0.05 mM) (300 l) was added to 40: l of extract solution with different concentrations (0.02 - 2 mg/ml). DPPH solution was freshly prepared and kept in the dark at 4°C. Ethanol 96% (2.7 ml) was added and the mixture was shaken vigorously. The mixture was left to stand for 5 min and absorbance was measured spectrophotometrically at 517 nm. Ethanol was used to set the absorbance zero. A blank sample containing the same amount of ethanol and DPPH was also prepared. All determinations were performed in triplicate. The radical scavenging activities of the tested samples, expressed as percentage of inhibition were calculated according to the following equation. Percent (%) inhibition of DPPH activity = [(AB – AA) / AB] x 100 Where AA and AB are the absorbance values of the test and of the blank sample, respectively [5].

RESULTS AND DISCUSSION:

Antioxidants are tremendously important substances which possess the ability to protect the body from damage caused by free radical induced oxidative stress. The antioxidant potential of chloroform extract of *C.cerasiformis* was investigated in the search for new bioactive compounds from natural resources

such as botanicals. It became clear that the chloroform extract of *Ctenolepsis cerasiformis* contains the highest antioxidant activity as compared with reference antioxidant Vitamin C for DPPH scavenging activity. Figure 1 and 2 shows that the free radical scavenging activities of control and sample such as BHT and chloroform extract of *C.cerasiformis.*

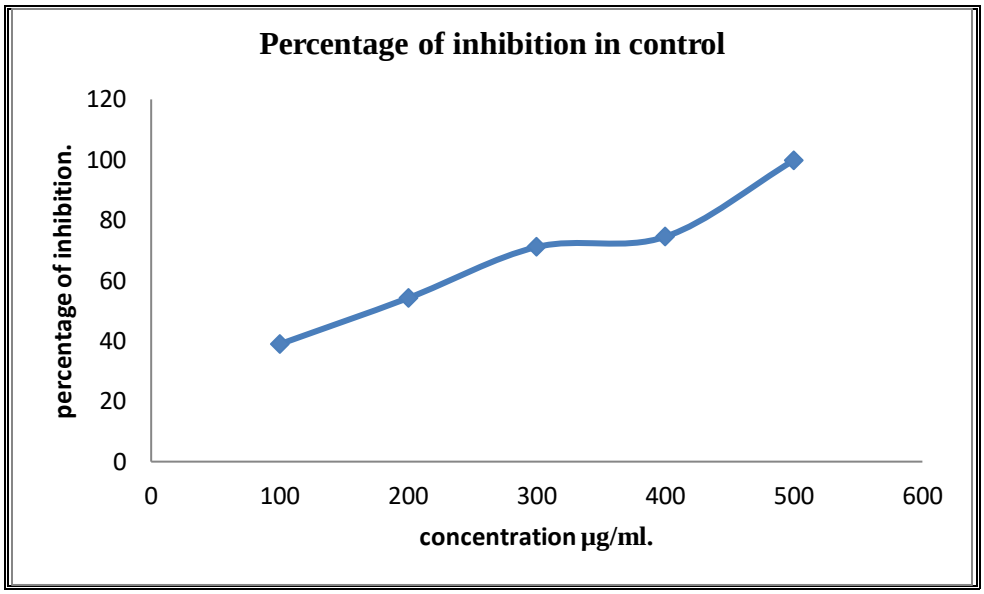

Fig. 1: shows the Percentage inhibition of BHT.

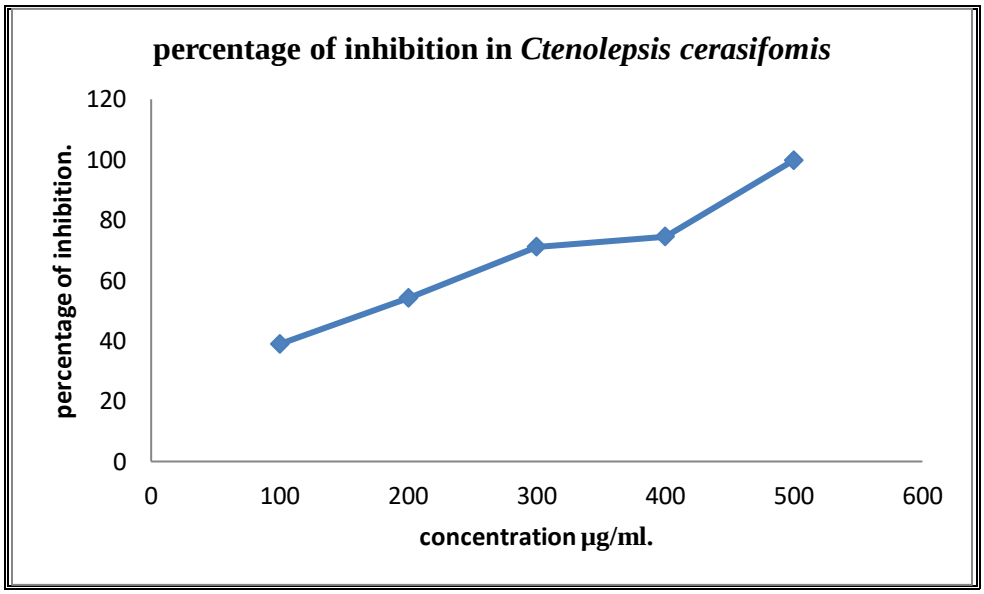

Fig. 2: shows the Free radical scavenging activity of *Ctenolepsis cerasiformis*

In chloroform extract of *Ctenolepsis cerasiformis* exhibited an antioxidant activity in a dose depended manner. When the concentration increases the inhibition of radical scavenging activity of *Ctenolepsis cerasiformis* also increased (100,200,300,400 and 500 µg/ml shows 1.6, 5.0, 10.1, 13.5, 18.6 and respectively). Our present study clearly indicate that the free radical scavenging activity of chloroform extract of *Ctenolepsis cerasiformis* due to the presence of various Phytochemical components such as flavanoids,

alkaloids, tannins , reducing sugars, cardiac glycosides and anthraquinones [6].

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