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Research Article

**IN VITRO ANTIOXIDANT ACTIVITIES OF CHLOROFORM
EXTRACT OF *CROSSANDRA INFUNDIBULIFORMIS*.****S.Selvakumar* and A. Prashanth.**

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Abstract:

*Cancer is a dreaded disease characterized by uncontrolled growth and spread of abnormal cells. The high mortality rate amongst cancer patients is an indication of limited efficiency of current therapies. Identifying the mechanism of plant derived anticancer agents provides helpful information in cancer therapy. Natural products have been used for the treatment of various diseases for centuries. Evidences have shown that active principle compounds from plants may serve as potent chemotherapeutic agents with less toxicity to normal tissues and at low cost. Plants have a long history of use in cancer therapy and it is significant that over 60% of currently used anticancer agents are from natural sources and around 80% of people in rural areas depend on plant products for their primary healthcare needs. Hence, we aimed to explore the in vitro antioxidant analysis of chloroform extract of *Crossandra infundibuliformis*. Our results envisage that the plant extract possess significant level of antioxidant activity.*

Key words: Antioxidants, DPPH, *C.infundibuliformis*, Chloroform, Natural products.

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INTRODUCTION:

The most important medicinal aims of this century is the prevention, cure and mitigation of cancer. For the past many decades, there have been extensive efforts to evaluate the chemotherapeutic role of substances present in natural products. Medicinal plants are frequently used by traditional healers to treat a variety of ailments and symptoms including diabetes and cancer. According to the World Health Organization, over 80% of the world's populations rely upon such traditional plant-based systems of medicine to provide them primary healthcare [1]. Dietary intake of phytochemical has been associated with decreased risk of cancer and significant survivability of cancer patients [2]. Over 60% of anticancer drugs available in the market are of natural origin. Natural chemical moieties are lead molecules for many of the drugs that are currently in use [3]. Colon cancer is one of the most common malignancies in many regions of the world and is thought to arise from the accumulation of mutations in a single epithelial cell of the colon and rectum [4]. The complex sequence of events occurring during initiation, development and propagation of tumours is likely the result of lifelong accumulation of a series of mutations [5]. *Crossandra infundibuliformis* belongs to the family of *Acanthaceae*. It is a plant which is important in South Indian horticulture industry. Hence it is of interest to investigate the Phytochemicals and pharmacological efficacy of the plant is paramount importance it may provide many emerging insights. Therefore, chloroform extract of whole plant of *C. infundibuliformis* have been investigated. The results of the present study reveals that the antioxidant effects of chloroform extract of *Crossandra infundibuliformis*.

MATERIALS AND METHODS:

Collection of medicinal plants

The whole parts of the indian medicinal plant *Crossandra infundibuliformis* were collected from the nearby medicinal garden, Chennai, India. The parts of the plants were authenticated by the botanist.

Plant Materials

The Chloroform extract of a whole parts of *Crossandra infundibuliformis* 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: 1 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 = $[(AB - AA) / AB] \times 100$ Where AA and AB are the absorbance values of the test and of the blank sample, respectively [6].

RESULTS AND DISCUSSION

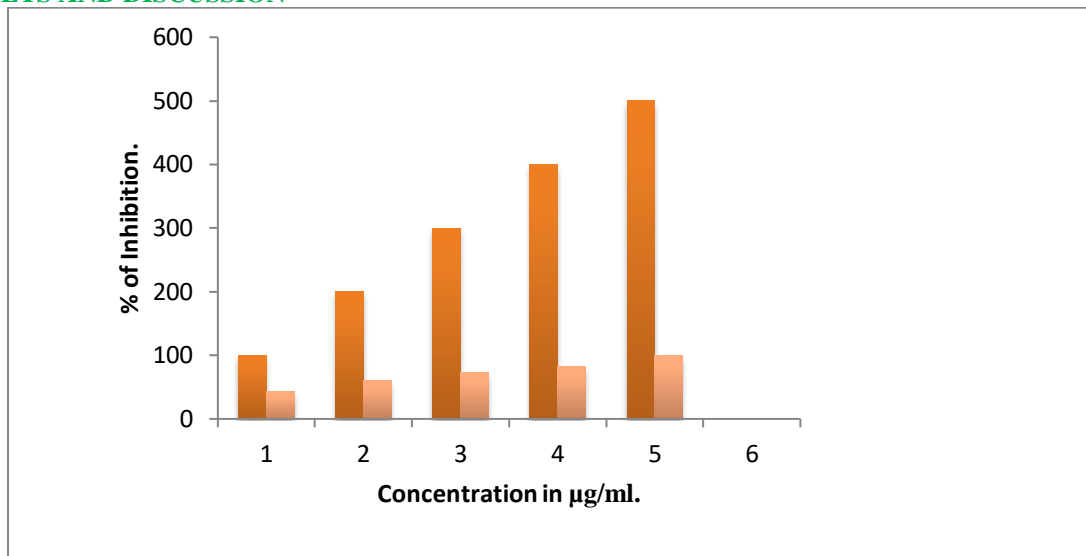


Fig.1: shows the percentage inhibition of BHT

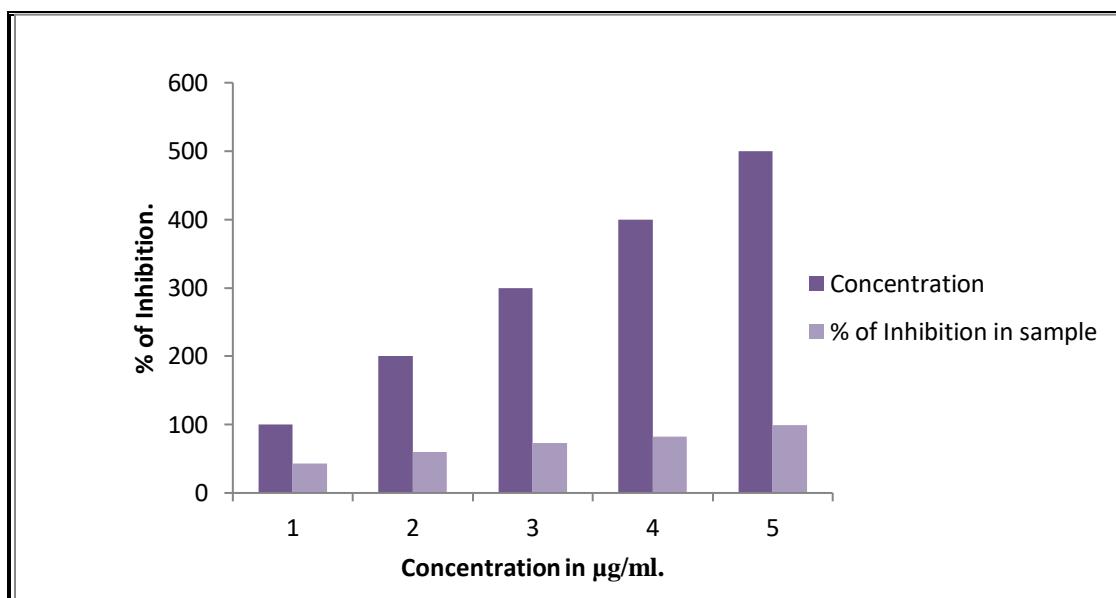


Fig. 2: shows the free radical scavenging activity of the chloroform extract of *Crossandra infundibuliformis*.

The safety of plants or plant based products as a potential therapeutic agents and must be ascertained and the side effects should be acceptable to the host. Bioactive compounds with no or less toxic effect to the host are the good candidates for formulation of drugs [7]. The chloroform extract of herbal medicinal plant *C.infundibuliformis* were exhibited an antioxidant activity in a dose depended manner. When the concentration increases the inhibition of radical scavenging activity of plant extract is also increased (100,200,300,400 and 500 µg/ml

concentrations in control BHT shows 38.9,54.2,71.1,74.5,99.8 and the free radical scavenging activity of the plant extract shows the percentage of inhibition 33.8,38.9,49.1,54.2 and 59.3 respectively). Our present study clearly indicate that the free radical scavenging activity of chloroform extract of *C.infundibuliformis* due the presence of various Phytochemical components such as flavanoids, alkaloids, tannins, reducing sugars, cardiac glycosides and anthraquinones.

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