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IN VITRO ANTIOXIDANT ACTIVITY OF *ARTOCARPUS HETEROPHYLLUS* LEAVES

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ABSTRACT

Artocarpus heterophyllus lam belonging to family Moraceae has been used traditionally in ayurveda system of medicine.The study investigates on hexane, ethyl acetate and methanolic extract of *A.heterophyllus* leaves for anti oxidant potential using DPPH radical scavenging method. The methanolic extract showed maximum antioxidant activity in comparison to all extracts. The concentration of 640 µg/ml of Methanolic extract showed 69.19% anti-oxidant activity in comparison to all extracts with the standard drug.

INTRODUCTION:

Artocarpus heterophyllus Lam [1] commonly known as jack fruit tree and belonging to the family Moraceae. The roots, barks, fruits and leaves are attributed with diverse medicinal properties and are used in various traditional and folk systems of medicine. It is native to Southeast Asia and is believed to have orginated in the south-western rain forests of the Western Ghats in the Indian subcontinent [2]. The jackfruit tree is a widely cultivated and popular food item throughout the tropical regions of the world. Jackfruit is the national fruit of Bangladesh [3]

MATERIALS AND METHODS

Plant Collection: The leaves of *Artocarpus heterophyllus* was collected in Parvathipuram, Vizianagaram (district) Andhra Pradesh, India in December 2016.The plant species was authenticated by Pro. Bodaih Padal, taxonomist, Department of Botany, Andhra University, Visakhapatnam. The voucher specimens (22212) were deposited in the herbarium, college of pharmaceutical sciences, Andhra University.

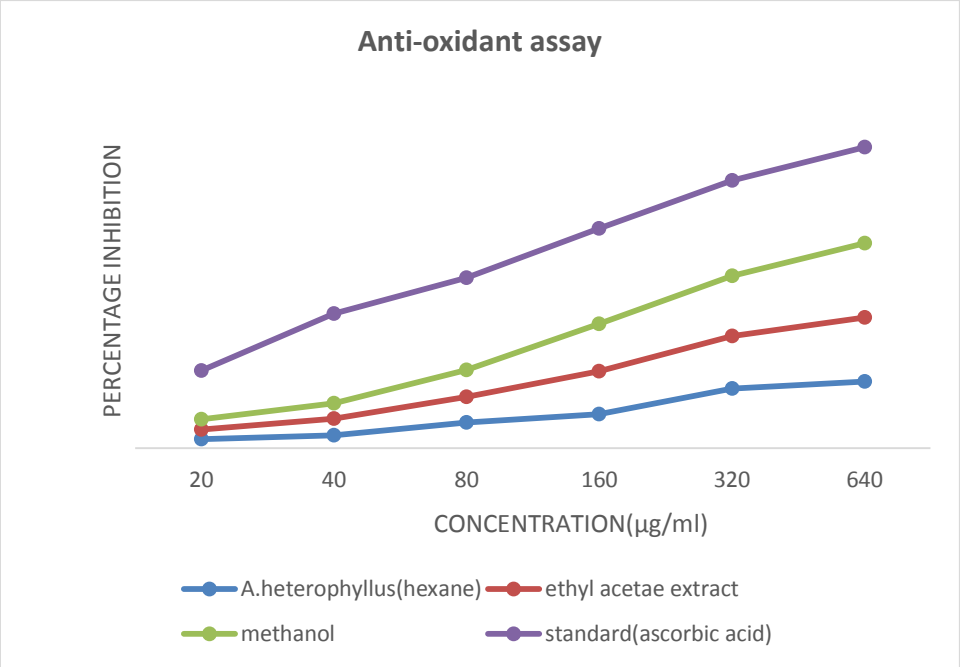
Extraction:

The dried powdered materials of leaves of the plant were extracted with soxhlet apparatus successively three times with Hexane, Ethyl acetate and methanol. The obtained extracts were concentrated and dried completely, weighed and stored in desiccators.

Method:

DPPH is organic chemical compound abbreviation for 1, 1-diphenyl 2-picrylhydrazyl which is a dark coloured crystalline powder composed of stable free radical molecules [4]. In DPPH assay method is based on the reduction of alcoholic DPPH solution (dark blue in colour) in the presence of a hydrogen donating antioxidant converted to the non radical form of yellow colored diphenyl–picrylhydrazine.

S.no	Concentration (µg/ml)	20	40	80	160	320	640
1	% Inhibition of hexane extract	8.9	12.3	20.2	23.4	32.4	36.7
2	% Inhibition of ethyl acetate extract	9.3	16.3	25.14	22.32	34.4	37.2
3	% Inhibition of methanolic extract	10.2	15.4	26.31	33.4	46.4	69.1
4	% Inhibition of Ascorbic acid(standard)	28.15	43.19	56.87	74.46	80.27	84.2



Reagents: 1, 1- diphenyl-2-picrylhydrazyl (DPPH, 0.004%) solution: 4 mg of DPPH was dissolved in 100 ml of methanol and kept it overnight in dark place for the generation of DPPH radical [5].

Procedure: An aliquot of 3 ml of 0.004% DPPH solution in hexane, ethyl acetate and methanol and 0.1 ml of plant extract at various concentrations were mixed respectively. The mixture was shaken vigorously and allowed to reach a steady state at room temperature for 30 min. Decolourization of DPPH was determined by measuring the absorbance at 517 nm. The control was prepared using 0.1 ml of respective vehicle in the place of plant extract with ascorbic acid. The percentage inhibition activity was calculated as

$$[(A_0-A_1)/A_0] \times 100.$$

Where A0 was the absorbance of the control, and A_1 was the absorbance of the plant extract/ ascorbic acid. Standard curve was obtained using different concentrations of ascorbic acid. Ascorbic acid standard and plant extracts with respective concentration was prepared Different concentrations of (20, 40, 80,160,320,640 µg /ml) were used to compare with the standard graph.

RESULTS:

Concentration dependent % Inhibition of DPPH radical scavenging by Hexane, Ethyl acetate, Methanolic extracts of *A. Heterophyllus* and ascorbic acid *In vitro* studies.

DISCUSSION:

Methanol extract of *Artocarpus Heterophyllus* leaves had shown significant scavenging effect on DPPH free radical which increased with increase in concentration. The concentration of 640 µg/ml of Methanolic extract showed 69.19% anti-oxidant activity in comparison to all extract and standard drug. From Anti-oxidant studies it is concluded that Methanolic extract showed maximum Antioxidant activity, further study is needed for isolation of active principle

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