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ANTIOXIDENT PROPERTY OF ETHANOL EXTRACT OF COCONUT HUSK

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Abstract :

The coconut tree (Cocos nucifera) is a member of the palm tree family (Arecaceae) and the only living species of the genus Cocos. The main objective of this study are to confirm the effectiveness of powder processed from coconut husk as antioxidant activity of different activities of different solvents. In present investigation we try to find out the antioxidant property of ethanol extract of coconut husk by using DPPH as a free radical scavenger and colorimeter. The result found that ethanol extract of coconut husk exhibited good antioxidant poperty.

Key Words: Coconut husk, antioxidant activity, DPPH, free radical, colorimeter.

INTRODUCTION:

The term “coconut” (or the archaic “cocoanut”) can refer to the whole coconut palm, the seed, or the fruit, which botanically is a drupe, not a nut. They are ubiquitous in coastal tropical regions and are a cultural icon of the tropics.The coconut tree provides food, fuel, cosmetics, folk medicine and building materials, among many other uses. The inner flesh of the mature seed, as well as the coconut milk extracted from it, form a regular part of the diets of many people in the tropics and subtropics.

Phytochemicals act in numerous ways to assist the human body in combating disease and health problems. In recent times quite a number of some plant parts such as palms, leaves, stems and roots have been used due to the presence of phytonutrients in them. Plants have been reported to be excellent sources of secondary metabolites such as tannins, flavonoids, alkaloids which can be used in the production of modern medicines to fight against microbial attacks. Nowadays, natural phenolic compounds have grown in popularity as food additives due to their safety and abundance. The presence of such beneficial biological activities indicated that coconut husks are not wastes but rather valuable natural resources. The objectives of the research are to extract the bioactive compounds from coconut husk, to determine the presence of flavonoid compounds and compare them and evaluate the antioxidant activities from coconut husk extract of three different types of coconut fruits.

Experimental Method

Collection and Preparation of Sample:

Coconut husk (C. Nucifera) was collected from the Akola region. The ecocrap was separated from the mesocarp prior to cutting it into smaller pieces and oven dried at a temperature of 60°C for 24 hours. After drying the husk they are grind and make into Powder. The powder is then kept in air tight container and stored in a dry place.

A] Qualitative antioxidant activity of ethanol extract of Coconut husk.

Finally 0.02% of DPPH solution in ethanol was prepare. Single drop of ethanolic extract of Coconut husk was taken on the place. After drying the spot the TLC plate were dipped in DPPH solution and tested for antioxidant activity.

Qualitative antioxidant activity shown by ethanol extract of Coconut husk.

Before applying DPPH

After applying DPPH

B] Study of Quantitative Antioxidant Activity OF Ethanol Extract of Coconut husk:

The antioxidant activity of ethanol extract from Coconut husk was assessed on the basis of the radical scavenging effect of the stable 1- dispheny1-2picrylhydrzyl. The diluted working solution of the extracts was prepared in water and ethanol. 0.002% of DPPH was prepared in ethnol and 2 ml of this solution. These solutions were kept in dark for 30 min and optical density was measured at 517 nm using colorimeter.

Ethanol(1ml) with DPPH solution (0.002% 1ml) was used as blank. The optical density was recorded and % AA inhibition was calculated using the formula given below

$$\% \text{ inhibition of DPPH (\%AA)} = A - \frac{B \times 100}{A}$$

Where,

A=optical density of the blank

B=optical density of the sample.

The stock solution 1 mg/ml of ethanol was prepared. The required dilution 0.1mg/ml to 1 mg/ml was prepared by appropriate dilution. The O.D and present antioxidant activity was calculated and reported in table no.1 and 2.

C] Phytochemical Investigation of ethanol extract of Coconut husk :

EMICAL EST	OBSERVATION	INFERENCE
arbohydrates Fehling's Test	Creamy white Precipitate	+
lkaloids Mayer's reagent	Creamy white Precipitate	+
lavonoids Ammonium Test	Yellow coloration	+
4. Glycosides	Dense red precipitate	+
5. Steroids Conc. H2SO4 Test	No reddish brown interface	-
6. Terpenoids Conc. H2SO4 test	No grey colour	-
aponins Emulsion Test	Emulsion formed	+
8. Tannins Lead acetate test	Cream gelatinous precipitate	+

Result and Discussion:

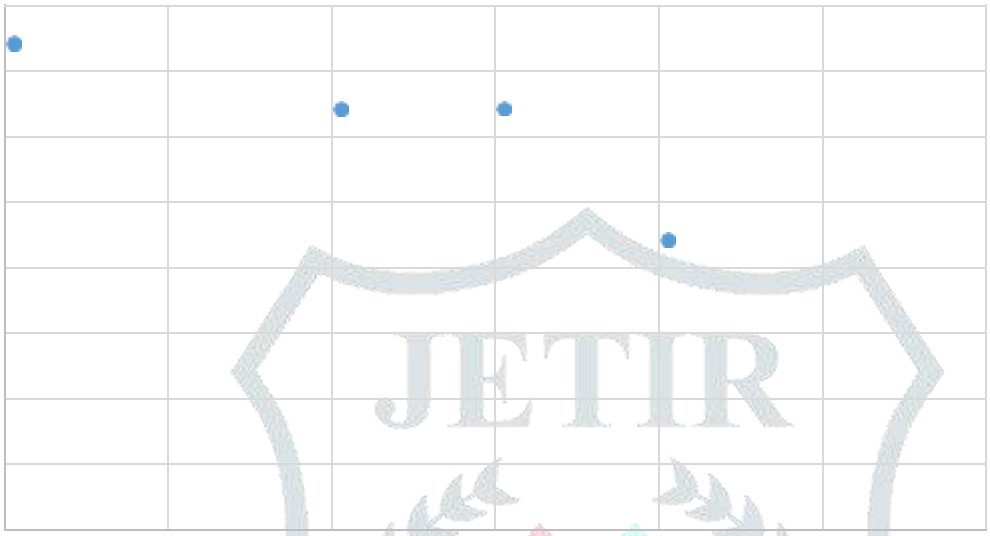
A] Study of Quantitative Antioxidant Activity of Coconut husk.

Table 1.Opticaldensity and Percent antioxidant activity for ethanol extract of Coconut husk .

O.D of blank DPPH= 0.99

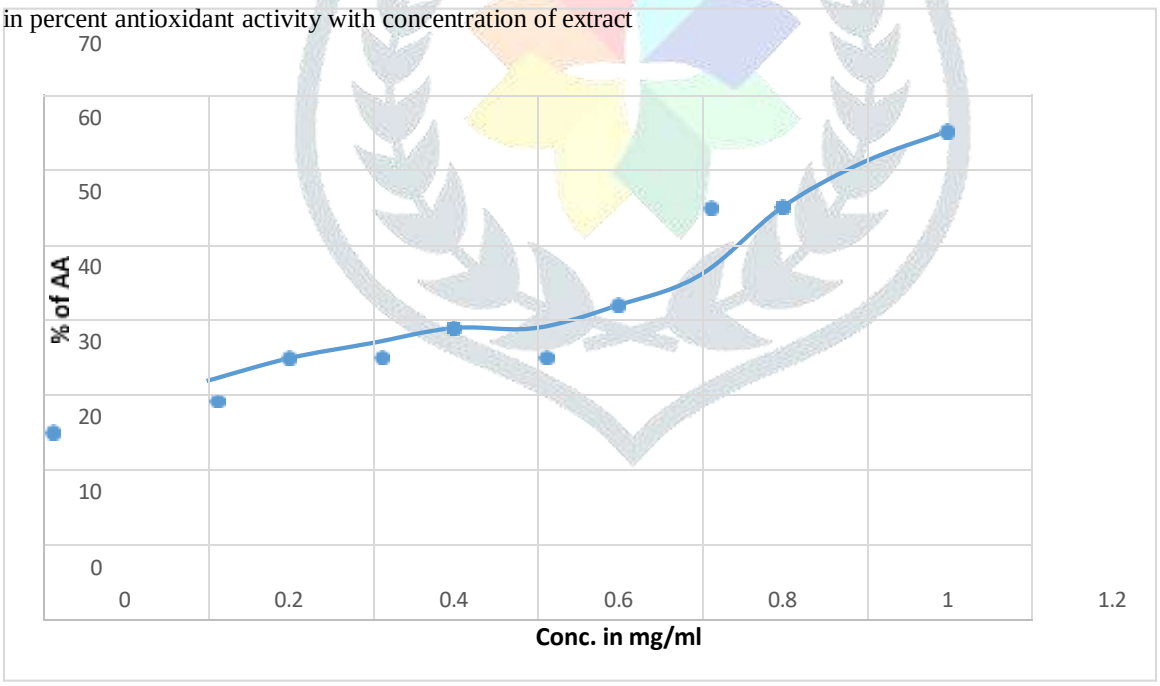
Conc.mg / ml	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
O.D. of sample	0.75	0.72	0.70	0.68	0.68	0.65	0.61	0.52	0.46	0.42
%AA	24.2	27.2	29.2	31.3	31.3	34.3	38.3	47.4	53.5	57.5

sample with increase in conc. of extract. O.D of Coconut husk.



(Fig. no. 1)

Increase in percent antioxidant activity with concentration of extract



(Fig. no. 2)

Calculation of IC_{50} value for coconut extract = Max-1/2 (max-min)
=57.57- ½ (57.57- 24.24)
=57.57- 0.5 (33.33)
=40.90%

Conclusion

The result obtained for the antioxidant assay by DPPH for ethanol extract of Coconut husk was reported. The remarkable decreases in O.D value of the test plant sample were observe from the graph, showed antioxidant activity. The Ic_{50} value for ethanol extract of Coconut husk were found to be 0.6 mg/ml.

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