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Comparative study of antioxidant activity of leafy vegetable found in Chhattisgarh

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Abstract:-
Integrated surveys of antioxidant capacity from Chenopodium album,(Bhathua bhaji)Corchorus Olitorius (Chech) and Cordia dichotoma(Bohar) have been limited and have particularly focused on an examination of seeds and leaves. Accoding to this, the main aim of the present study was to address an evaluation of the antioxidant activity of crude methonolic extracts from these three plants parts (leaves and seeds) In order to characterize the resulting extracts, the total content of phenolics (TPC) and antioxidant capacity was determined using, 2- 2-diphenyl, -1- Picryl hydrazyl (DPPH) free radical scavenging method. Most of the extracts of sample showed higher TPC value ranging from 0.05- 0.58 of gallic acid and they showed the RP value ranging batween 0.01- 0.27 milligram. After statistical analysis, a low correlation between TPC and RP value was observed regarding antioxidant capicity from DPPH measurements. and their value find the ranging of 7.05 - 63.25 millgram.

Keywords: Chenopodium album(Bhathua),Cordia dichotoma(Bohar),Corchorus Olitorius(Chech), Antioxidants, Phenols, Flavonoids, DPPH.

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I. Introduction :-

Antixidants are the compound that fight with free radicals in our body. The free radicals are those compound that can cause harm in our body if they have became large amount in our body They can also Caused many disease like heart disease, Cancer, diabetic disease and So many disease. In this thesis my topic is about antioxidant properties of green leafy vegetable so, we focused on antioxidant properties of green leafy vegetables and the antioxidant properties of traditional leafy vegetables are higher than several conventional vegetables they protect us against many chronic disease like heart disease and the certain type of cancer.
(i) Ryan Raman (2018)
(ii) Atli Arnarson (2019)

II. Material and Methods:-

(I) Material:- Chenopodium album (Bhathua bhaji) ,Cordia dichotoma(Bohar bhaji) and Corchorus Olitorius(Chech bhaji) leaves steem and Seeds (Bohar bhaji) were collected by self.Cordia dichotoma was collected in match 2020 in Autuman seasons and secondly Chenopodium album was collected in February 2020 in winter season and the third compound means Corchorus Olitorius was collected in March 2020.They all collected from Bartunga block Dabhara (C. G.)

(II) Preparation of plant extracts :-

Every plant seeds (Bohar bhaji) leaves and stems were extracting separately and prepared methanolic solution and then incubated at 60 to 150 rpm for 20 h. Then the mixture were filtered through Whitman filter paper to be obtain the filtrates. then the filtrates were poured on measuring flask and they makeup with distilled water and after 24 h the filterate were obtain transfer to the beaker and cover with foil.

(III) DPPH Redical Scavenging Activity:-

Ebrahimzadeh et al. was enlarged as described the extracts of the free radical scavenging ability against DPPH radical and for 450 ul of the extract was mixed with 4.5 ml of 300 uM methanolic solution which is containing the DPPH radical and then for 30 min the mixture was left in dark and at 517 nm using a spectro uv-vis dual beam model uvs-2700 the absorbance was measured. The antioxidant activity was showed as the percentage of reduction of the initial DPPH absorption by test samples as follows ÷

DPPH radical scavenging effect (%) =

$$\%) = \frac{A_0 - A_t}{A_0} \times 100$$

Where A∘ is absorbance of the control Ant At is absorbance of the sample.
(Afzal Hossain, MST. Afifa Khatun and Roksana Huque et al.)

III. Result and Discussion :-

Cordia dichotoma(Bohar bhaji) , Chenopodium album(Bhathua bhaji) and Corchorus Olitorius(Chech bhaji) They all showed the antioxidant properties which is good for our health.

(1.) Antioxidant activity of leafy vegetables DPPH

Phytochemicals are present in the foods which protect our body from the detrimental effects of free radicals. which is producted in our body by put a stop to their production or neutrilized free radical or chelating the conversion the metal composition of foods. The dpph free radical scavenging ability of raw extracts of leafy vegetables and presented in fig. The results revealed that among the raw leafy vegetables the methanolic extract of cordia dichotoma, chenopodium album and corchorus Olitorius had significantly higher dpph radical scavenging activity than the other vegetables C. Dichotoma,C.album and C. Olitorius were exhibite comparable antioxidant activity with that of standard ascorbic acid at varying concentrations tested (5, 25,50,75 and 100 ug/ml) There was does dependent increase in the percentage antioxidant activity for all concentrations tested and ascorbic acid is used as a standard by dpph method. The concentraction of ascorbic acid varied from 1 to 100 ug/ml,Ascorbic acid at a concertration of 5ug/ml in C. dichotoma exhibited a percentage inhibion of 25.74% and in 100ug/ml-79.68% (table 1)and In chenopodium album Ascorbic acid at a concentration of 5 ug/ml - percentage inhibition 22.32% and of 100 ug/ml-58.21% found and a C. Olitorius in this concentration 5 ug/ml - 20.73% and in 100 ug/ml concertraction the percentage inhibiter was found 57.11% It is observed that all 3 plant extract slow significant dpph radical scavenging properties.

Table-1 Antioxidant activity of methonolic extract percentage inhibition of standard (ascorbic acid) and test drug(Cordia dichotoma)

Concentration	DPPH	DPPH
	MeoH	STD
5	11.25	25.74
25	20.50	40.32
50	37.55	50.55
75	52.43	60.97
100	63.25	79.67

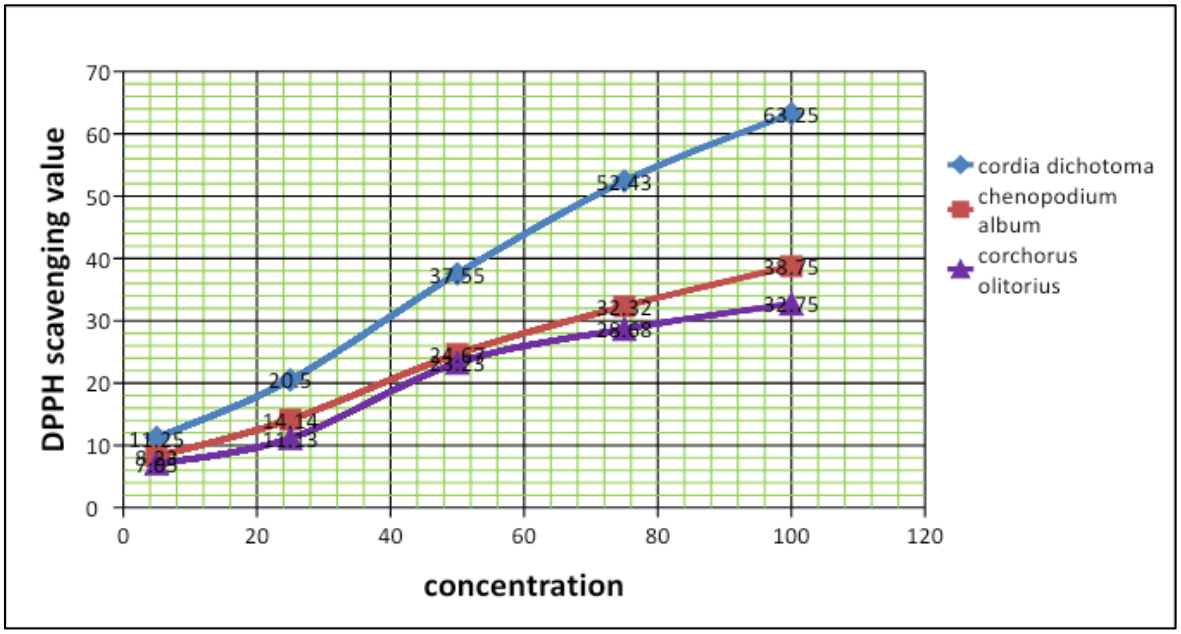
Percentage inhibition of standard (ascorbic acid) and test drug (Chenopodium album)

Concertration	DPPH	DPPH
	MeoH	STD
5	8.23	22.32
25	14.14	36.71
50	24.67	48.59
75	32.32	54.65
100	38.75	58.21

% Inhibition of standard (ascorbic acid) and test drug (Corchorus Olitorius)

Concentration	DPPH	DPPH
	MeoH	STD
5	7.05	20.73

25	11.03	34.24
50	23.23	45.55
75	28.68	53.75
100	32.75	57.11



	C. Dichotoma	C. Album	C. Olitorius
TPC	+	+	+
RP	+	+	+
Vit. C	+	+	+

IV. Discussion :-

Antioxidant presence in herbs,fruis spices they are responsible for preventing the oxidative stress and contain free radical scavenging properties.The effect of hydrogen donating ability of dpph it shows antioxidant or radical scavenging properties. DPPH is a stable free radical and it accepts and electron of hydrogen radical to become a stable dimagnetic molecules.The reduction capability of dpph radical was determined by the decreasing absorbance at 517 nm which is induced by antioxidants. Their Phenolic group directly help to antioxidant action. It is suggested that polyphenolic compounds that have inhibit the effect of mutagenesis and carcinogenesis in humans.

V. Conclusion:-

Cordia dichotoma, Chenopodium album and Corchorus Olitorius showed strong antioxidantal properties by inhibiting DPPH and reducing power activities. Which is compaired with their absorbance. The three extracts were found to contain sufficient amount of total phenols which control the oxidation of free radical. The result of the study that the extracts of the drugs can shows a natural antioxidant.

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