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Comparison of phenolic , flavanoid contents and antioxidant activities of various extracts of selected plants of Genus *Cucumis* L. and *Momordica* L. of family Cucurbitaceae

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INTRODUCTION

- **It is well known that reactive oxygen species (ROS), such as superoxide anion ($O_2^{\bullet -}$), hydroxyl radicals ($OH^{\bullet}$), singlet oxygen ($^1O_2$) and hydrogen peroxide (H_2O_2), play a major role in the development of oxidative stress that can lead to many illnesses including cardiovascular diseases, diabetes, inflammation, degenerative diseases, cancer, anemia, and ischemia (Cai *et al*., 2004).**

- **Plant based antioxidant compounds play a defensive role by preventing the generation of free radicals and hence are extremely beneficial to alleviate the diseases caused by oxidative stress (Akinmoladun *et al*., 2010; Özen *et al*., 2010)**

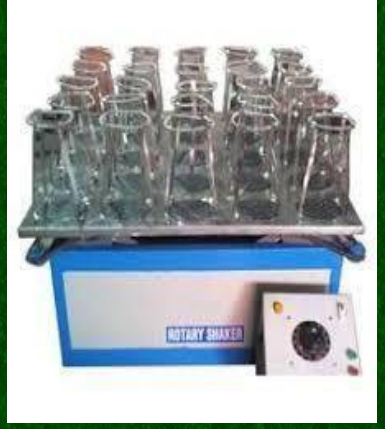
OBJECTIVES

- The objectives of the study were to
- Establish scavenging effect of extracts on some non biological free radicals - 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical
- To evaluate total phenolic content
- To evaluate total flavanoid content

Material and methods

METHODOLOGY

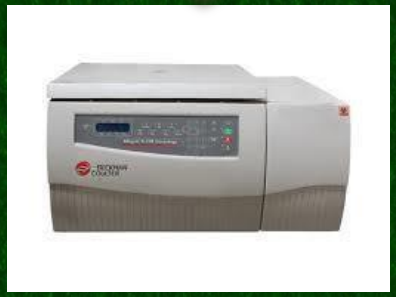
Dried plant



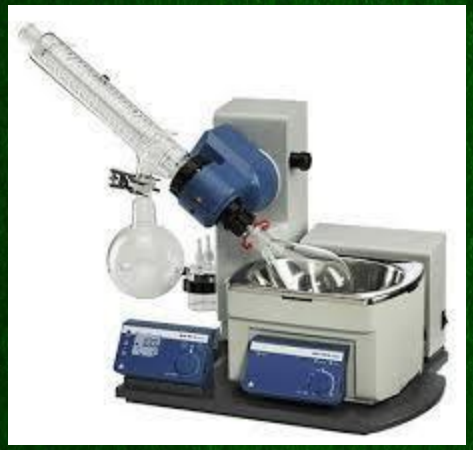
Soaked in 50% Methanol, 24 hrs.

Homogenized

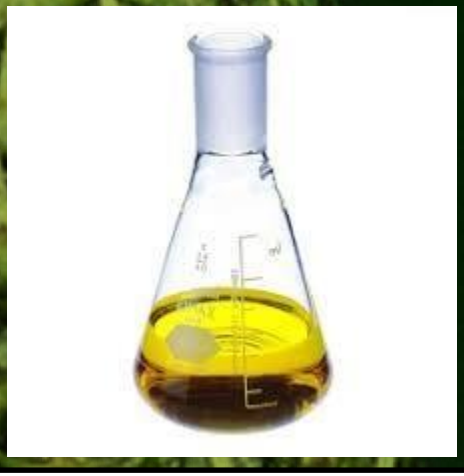
Filtered



Centrifuged



Rotary evaporator



Concentrated extract

Antioxidant activity

DPPH assay (Clarke et al.)

0.1 Ml test sample + 0.9 Ml of 0.1mM solution of DPPH in methanol

↓

Incubate for 30 minute at room tempertaure

↓

Absorbance at 517 nM

- Control sample – 0.1 Ml methanol in 0.9 mL DPPH
- Ascorbic acis as standard
- Blank – distilled water

Total phenolic content

1 mL test sample + 2 mL water +1 mL of Folin-Ciocalteu's phenol reagent

↓

After 5 Minute 1 mL of saturated sodium carbonate (8%w/v in water)

↓

Dilute with deionised water to make final volume 25 mL

↓

Keep for 30 minute in dark

↓

Absorbance at 765 nm

Total flavanoid content

❖The flavonoids content was determined (Zhishen et al., 1999).

❖A volume of 125µL of extract is added to 75 µL of a 5% NaNO2 solution.

❖The mixture was allowed to stand for 6 min, then 150 µL of aluminium trichloride (10%) was added and incubated for 5 min,

❖The 750 µL of NaOH (1M) was added

The final volume of the solution was adjusted to 2500 µL with distilled water.

❖After 15 min of incubation the mixture turned to pink and the absorbance was measured at 510 nm.

Results and Discussions

Antioxidant activity

Antioxidant activity of *Cucumis* L.

Concentration (µg/ml)	Ascorbic acid	*Cucumis melo* L.	*Cucumis melo* var. *agrestis*	*Cucumis melo* var. *momordica*
100	63.72±0.87	52.92±0.28	56.68±0.98	54.65±0.060
200	73.31±0.62	63.37±0.54	61.92±0.56	59.854±0.148
300	83.95±0.58	74.91±0.76	75.48±0.78	73.294±0.422
500	92.87±1.45	78.52±0.87	77.65±1.26	75.26±0.65

Antioxidant activity of *Cucumis* L.

Concentration (µg/ml)	Ascorbic acid	*Momordica charantia*	*Momordica balsamina*	*Momordica dioica*
100	63.72±0.87	23.672±0.234	25.897±0.326	28.702±0.671
200	73.31±0.62	35.982±0.424	37.273±0.250	41.536±0.240
300	83.95±0.58	43.643±0.678	49.107±0.653	52.712±0.441
500	92.87±1.45	47.240±0.27	51.830±0.34	57.670±0.74

Total phenolic and flavanoid

Plant	TPC	TFC
CM	81.08 ± 0.05^{a}	73.03 ± 0.21^{a}
CMAI	43.07 ± 0.05^{e}	38.27 ± 0.15^{e}
CMAII	55.49 ± 0.07^{c}	49.43 ± 0.15^{c}
CMM	69.18 ± 0.06^{b}	55.97 ± 0.40^{b}
MC	39.25 ± 0.12^{f}	36.8 ± 0.2^{f}
MB	44.53 ± 0.02^{d}	42.6 ± 0.2^{d}
MD	36.73 ± 0.09^{g}	35.43 ± 0.25^{g}