BIOLGICAL ACTIVITY OF METHANOLIC AND AQUEOUS EXTRACT OF GLYCOSMIS MAURITIANA AND STREBLUS ASPER

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Article Received on: 12/10/11 Revised on: 20/11/11 Approved for publication: 18/12/11

ABSTRACT
The present study focus on evaluations of the anti-oxidant property of few medicinal plants like Glycosmis mauritiana and Streblus asper and assay of bioactive compounds responsible for its activity. Among these DPPH radical scavenging activity was highest with G.mauritiana with 93%, catalase activity with 1.0mg of protein, and acid phosphatase inhibition was highest with S.asper with alcoholic extract.

Keywords: DPPH, Acid phosphatase, catalase, bio-active compounds.

INTRODUCTION
Herbal remedies are often sought by patients with diseases especially patients with cancer to provide symptom relief natural product was one of the therapies most commonly used by adults and children now a days. A growing amount of evidence indicates a role of reactive oxygen species (ROS) such as peroxyl radicals (ROO•), hydroxyl radical (HO•), superoxide anion O2– and singlet oxygen in the pathophysiology of aging and different degenerative diseases such as cancer, cardiovascular diseases, Alzheimer’s disease and Parkinson’s disease (Davies, 2000; Fenkel & Holbrook, 2000).The antioxidants protect from the potentially damaging oxidative stress, which is a result of an imbalance between the formation of ROS and the body antioxidant defense. Antioxidants have also been used in food industry to prevent deterioration, nutritional losses and off-flavoring in various foods, especially those containing polysaturated fatty acids. Recently, interest has increased considerably in finding naturally occurring antioxidants for use in foods because of their potential in health promotion and disease prevention, and their high safety and consumer acceptability (Gorinstein et al., 2003). The higher intake of plant foods correlates with lower risk of mortality from these diseases (Johnson, 2001).Polyphenols are the most significant compounds for the antioxidant properties of plant raw materials. The antioxidant activity of polyphenols is mainly due to their redox properties, which allow them to act as reducing agents, hydrogen donors, singlet oxygen quenchers, metal chelators and reductants of ferryl hemoglobin (Rice-Evans et al., 1995; 1997; Prior et al., 2005; Lopez et al., 2007; Ciz et al., 2008; Gebicka & Banasiak, 2009). Rapid production of free radicals can lead to oxidative damage to biomolecules and may cause disorders such as cancer, diabetes, inflammatory disease, asthma, cardiovascular diseases, neurodegenerative diseases, and premature aging (Young and Woodside, 2001). Many medicinal plants contain large amounts of antioxidants, such as polyphenols, vitamin C, vitamin E, selenium, β-carotene, lycopene, lutein, and other carotenoids, which play important roles in adsorbing and neutralizing free radicals, quenching singlet and triplet oxygen, or decomposing peroxides (Djeridane et al., 2006). Moreover, plant secondary metabolites such as flavonoids and terpenoids play an important role in defense against free radicals (Govindarajan et al., 2005).

MATERIALS AND METHOD
Plant material: The leaves of G.mauritiana, S. asper were collected from Paderu region in the month of July. Chemicals: Chemicals were purchased from the local dealer. Preparation of plant crude extract: The plant materials were thoroughly cleaned, shade dried and coarsely powdered in a mechanical blender. 10gms of material was soaked in 100 ml of methanol and water for 24hrs at room temperature, filtered through Whatmann No.1 filter paper. The filtrate obtained was used for further tests.

DPPH radical scavenging activity
DPPH scavenging activity was measured by the method of (Cuedet et al., 1997). To 5 ml of a methanolic solution of DPPH (0.004%), 50 replaced by methanol and water. The reaction mixture was incubated for 30 min.

IC 50 = Absorbancy of control - Absorbancy of sample X 100
Absorbancy of control

Total flavonoids determination
Aluminum chloride colorimetric method was used for flavonoids determination (Chang et al., 2002). 0.5 ml of each plant extracts were separately mixed with 1.5 ml of methanol, 0.1 ml of 10% aluminum chloride, 0.1 ml of 1 M potassium acetate and 2.8 ml of distilled water. It incubated at room temperature for 30 min; the absorbance of the reaction mixture was measured at 415 nm with a. The calibration curve was prepared by preparing quercetin solutions at concentrations 20, 40, 60, 80,100μg in methanol and results represented as mg/gm of dry weight.

Total phenols determination
Total phenols were determined by Folin Ciocalteu reagent (McDonald et al., 2001). A dilute plant extract (0.5ml) or gallic acid (standard phenolic compound) was mixed with Folin Ciocalteu reagent (5 ml, 1:10 diluted with distilled water) and aqueous Na2CO3 (4ml, 1 M). The mixtures were allowed to stand for 15 min and the total phenols were determined by colorimetry at 765 nm. The standard curve was prepared using 10-100mg L-1 solutions of gallic acid in methanol: water (50:50, v/v).

Assay of catalase
2.5ml of 0.1 phosphate buffer ,ph7.5 and 2.5ml of 0.9%hydrogen peroxide (v/v) in the same buffer were taken and 0.5ml of the plant extract was added & incubated at room temperature for 3min the reaction was then arrested by adding 0.5ml of 2N sulphuric acid and the residual hydrogen peroxide was titrated with 0.1N permanganate solution. A blank was carried out similarly with boiled enzyme extract. Units of enzyme activity were expressed as ml of 0.1N potassium permanganate equivalent of hydrogen peroxide decomposed/ min/mg of protein.

Assay of acid phosphatase
Take 5ml of buffer substrate (0.02M sodium beta glycerophoaphte in buffer) in a clean and dry test tube pre-incubate at 37c for 10min. Then add 0.1ml of enzyme extract (potato filterate) and then incubate for 30min at 37c. At the end of incubation period add 2.5 of
10% TCA and mix well keep the test tube for another 10min and filter the centrifuge or contents. Take 0.5ml of filtrate for the determination of inorganic phosphorus by Fisky subbarow method. Concentrations are in (6.2,12.4,18.6,24.8,31.8 μg) and results are expressed in mg/ml.

**Statistical analysis**
The values are expressed as the means +S.D of three determinants expressed in mg/ml.

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**RESULTS AND DISCUSSION**

The antioxidant ability of medicinal plants *G.mauritiana* and *S.asper* were determined by preparing two extracts. Methanolic and aqueous extracts were prepared by soaking the material in different solvent. The biological activity was determined by DPPH method. It gives the radical scavenging ability of plant extracts. Fig 1: Suggests that the methanolic extracts of *G.mauritiana* (93.04%) and *S.asper* (89.3%), which was comparatively higher than aqueous extract. Fig 2: Gives the data regarding total flavanoids in the methanolic & aqueous extracts of *G.mauritiana* and *S.asper*. The aqueous extract gives higher amount of total flavanoids. *G.mauritiana* (0.028mg/gm) *S.asper* (0.02mg/gm).This is important as these bioactive compounds may be responsible for radical scavenging activity. Fig 3: Explains the data regarding total phenolics in the methanolic and aqueous extracts of *G.mauritiana* and *S.asper*. The aqueous extract gives higher amount of total flavanoids. *G.mauritiana* (0.077mg/gm) *S.asper* (0.056mg/gm). Fig 4: Gives the data regarding total catalase activity in the methanolic and aqueous extracts of *G.mauritiana* and *S.asper* the methanolic extract gives higher amount of total catalase activity *G.mauritiana* (1mg of protein) *S.asper* (0.3mg of protein). Fig 5: Shows inhibition of acid phosphatase in presence of methanolic and aqueous extracts .Such that in the methanolic extracts shows low acid phosphatase value of *G.mauritiana* and *S.asper* aqueous extract with 14mg/ml. Elevation in level of acid phosphatase related with various diseases hence extract has shown potential decrease in value of enzyme.

**CONCLUSION**

Different pattern of results were obtained with different plant species(*G.mauritiana, S.asper*) among these species *G.mauritiana* has shown potential radical scavenging activity further studies on this plant species could provide valuable information.

**ACKNOWLEDGMENT**

The authors are thankful to M.V.R college management for providing the chemicals and lab and members of the department of Biochemistry.

**REFERENCES**


Source of support: Nil, Conflict of interest: None Declared