Characterization of Pedalium murex L. Seeds for its Antioxidant Activity.

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ABSTRACT

Pedalium murex L. (family: Pedaliaceae) is a common medicinal plant in the Indian system of Medicine used in the treatment of renal diseases, digestive tonics, ulcers, fevers, wounds and other disorders, as they possess antioxidant activity. In the present study of Pedalium murex was selected depending upon its availability and its use in curing various health ailments for antioxidant studies. In vitro antioxidant study the most common method is the DPPH (2,2-Diphenyl-1-picrylhydrazyl) assay. The plant has antioxidant, anti-inflammatory, anti-microbial and anti-diabetic effects. Ethno-medicinal plants play a vibrant role in inhibiting different disorders in human-beings and cattle. The goal of these studies is to discover an effective treatment for a variety of illnesses that are prevalent in today's society, as well as a way to postpone the signs of aging.

Keywords: Ailment, Antioxidant, Activity, DPPH, Pedalium murex.

INTRODUCTION

Plants can synthesize a wide variety of chemical compounds that are used to perform important biological functions and to defend against attack from predators such as insects, fungi and herbivorous mammals. Most antioxidants are particularly rich in phenolic compounds, vitamins and carotenoids. All over the world, human beings are suffering from various disorders. This plant is safe and healthy to eat, is also utilized for drug development and is a top-level scavenging wildflower. The main focus of this study was to evaluate the bioactive antioxidant activity of the fruit extract of *Pedalium murex.* Results show that fruit extract is more potent and is used as a powerful antioxidant and chemotherapeutic medicine. Thus antioxidants are naturally stirring in the medicinal plant, leaves, vegetables and roots that have protective mechanisms and protect from various diseases. In the present investigations, fruit showed a better amount of antioxidant activity in dose-dependent manner. Consequently, highest DPPH inhibition activity was found at 100µl concentration.

MATERIALS AND METHODOLOGY

Chemicals and Instruments- DPPH free radicals were procured from Sigma Aldrich. Sodium carbonate, Sodium phosphate, potassium ferricyanide, ammonium molybdate, standard rutin, ascorbic acid and gallic acid, 2-thiobarbituric acid (TBA), butylated hydroxyl anisole (BHA), Follin-Ciocateu and H_2O (30%, v/v). All other chemicals and solvents were analytical grade. The absorbance measurements were recorded using the ultraviolet-visible spectrophotometer.

Procedure

For DPPH analysis, Brand-Williams et al.(1995) method was utilized. 100 ml conc. methanol was added to 10 gm sample (10:1) and incubated at 37°C temp for 24hrs. After this the above sample was filtered in a Petri plate for drying. Methanol was added to the dry crude extract plate according to 1mg/ml and was collected in an Eppendorf tube. Different concentrations were taken ranging from 10 to 100 µl of sample and the final volume was made up to1 ml with methanol. To the above solution, 1 ml of DPPH was added (0.01gm in 100 ml methanol) in all series one by one and was mixed properly, and incubated in the dark for 30 min. Blank used was 1.5 ml methanol and the control used was methanol + DPPH (1:1) and absorbance was taken at 517 nm.

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The DPPH scavenging activity was calculated in percentage by following formula:

$$\% \text{ inhibition of DPPH} = \frac{(AB - AS)}{AB} \times 100$$

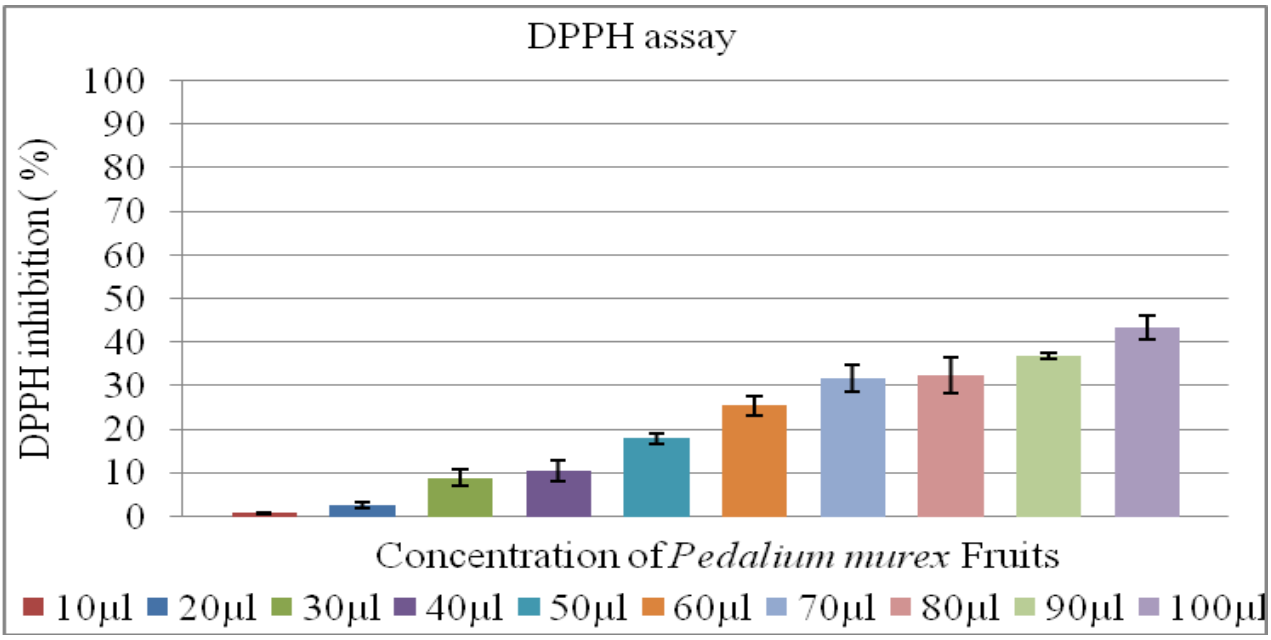
(Here- AB_{is} blank absorbance and AS_{is} sample absorbance.)

RESULT

The chloroform extract doesn't show antioxidant activity, whereas the ethanol extracts showed notable antioxidant activity. The *Pedalium murex* fruit extracts significantly possessed Glycosides, Flavonoids, Phenols, Tannins and Carbohydrates. Radical scavenging activities of this plant were determined by DPPH assays at different concentrations. The fruit part showed maximum scavenging activity at 100µl concentration. From the result it was evident that the plant showed good antioxidant activity with dose dependent manner. Accordingly, antioxidant activity was directly proportional to the concentration of the plant sample. The fruit part showed 43.46% DPPH highest activity at 100µl concentration.

Table- 1 DPPH activity of Pedalium murex fruit

Sample Concentration	% DPPH inhibition activity
10µl	0.769±0.19
20µl	2.56±0.66
30µl	8.84±1.85
40µl	10.51±2.34
50µl	17.95±1.17
60µl	25.51±2.25
70µl	31.79±3.10
80µl	32.43±4.03
90µl	36.92±0.57
100µl	43.46±2.85



DPPH activity of Pedalium murex Fruit

CONCLUSION

In conclusion it could be concluded that the *Pedalium merex* preliminarily passed for antioxidant activity. Results of the present study show that the selected plant contains the highest amount of antioxidant activity.

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Therefore, the plants can be further harnessed for novel activity to inhibit cellular damage/bio-active compounds which is very well demonstrated by the current effort.


Pedalium murex

Medicinal Properties-

Pedalium murex is a traditional medicine used to treat reproductive diseases especially in men, leucorrhoea and gonorrhea of women, nocturnal emissions, gastrointestinal tract diseases, and urinary tract diseases. Tribal people informed that leaves give more positive results for the treatment of bone fractures, ulcers, splenic enlargement dysuria and diarrhoea, as well as leaves decoction prevents diabetes mellitus. Aqueous solution of the entire plant is used as a blood purifier, aphrodisiac, tonic, diuretic and improves bladder stone, appetite, urinary discharges, asthma, skin problems, cardiac diseases, cough, spermatorrhoea, leprosy, piles, vesicular calculi, pain, strangury, stomachic, emmenagogue, lumbago, impotency, more urination, appetizer, and gleet. In addition it is also used to raise blood flow during menopause and is effective for gargling in painful gums and mouth problems. The whole plant is given to treat diarrhoea, cold, stomachic, intestinal infections, headache, dysentery, cough etc.

Importance of the present Investigation-

Pedalium murex plays an important role in preventing various ailments in humans and cattle. The outcome of this research work will reflect the system of updating the information that provides inducement for appropriate estimation of the plants as a therapeutic agent, in contrast to many human ailments. It is very essential for pharmaceutical chemists, phyto-chemists, pharmaceuticals, and Entrepreneurs who are engaged in the medical Industries. Due to the availability of the secondary metabolites as stated above, they help in the form of anti-diuretic, anti-analgesic, anti-cancer, anti-viral, anti-malarial, anti-fungal, and anti-inflammatory activities. The antioxidant examination of the significant herbal plants is vital and has gained significant attention in both study and drug companies for making new medicines for treating numerous fatal diseases. The significant characteristics of antioxidants are recognized in this investigation and will be beneficial in various disorders in the present area of research.

Conflicts of interest – The authors declare that there is no conflict of interest.

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