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Research Article

VITRO ANTI- OXIDANT ACTIVITY OF *MYXOPYRUM SERRATULUM* A.W HILL

T. SHEELA RANI[a*], V.GOPAL[b], S. SEETHA LAKSHMI[a], K.CHITRA[a]

[a]Faculty of Pharmacy, Sri Ramachandra University, Porur, Chennai, 600116, [b]Mother Teresa Post Graduate &Research Institute of Health Sciences, 605006,Pondicherry, India. Email: sheelathiru@yahoo.co.in

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ABSTRACT

Objective: The present research study was undertaken to investigate and evaluate *invitro* antioxidant activity of methanol extract of *Myxopyrum serratulum* A.W HILL

Materials and Methods: Methanolic extract of *Myxopyrum serratulum* was examined for DPPH and Nitric oxide scavenging activity with reference to standard drug(ascorbic acid) through *invitro* antioxidant activity.

Result and Discussion: *Invitro* antioxidant was performed in Methanolic extract of *Myxopyrum serratulum* using DPPH(1,1-Diphenyl-2-Picrylhydarzyl radical) and Nitric oxide scavenging activity & it showed significant activity with maximum inhibition of about 81.75% and 84.95% respectively which is comparable with the standard drug.

Conclusion: The present study showed significant activity which can be compared to standard drug ascorbic acid. It indicates that the selected medicinal plant is a better source of antioxidant which might be helpful to prevent the progress of oxidative stress.

Keywords: *Myxopyrum serratulum* A.W HILL (aerial parts); DPPH assay; Nitric Oxide Radical Scavenging Assay Method.

INTRODUCTION

Antioxidants may be defined as radical scavengers which protect the human body against cellular damage. Secondary metabolites such as Flavonoids, glycosides and flavones which are widely distributed in plant materials may be responsible to possess antioxidant and antiradical properties. The literature review revealed that selected plant has traditional use to treat fever, headache, backache, migraine etc. The roots are used to treat various diseases like scabies,cough, rheumatism, fever, cuts and wounds [1].Pharmacognostical evaluation has been made for the plant and reported for the presence of terpenoids, flavones, anthraquinones, sugars, alkaloids, phenols, tannins, and saponins[2], antimicrobial study has been carried out in leaves[3]. So an attempt has been made to study the systematic scientific evaluation for the selected medicinal plant *Myxopyrum serratulum* (aerial parts). Considering the importance of this area, *in vitro* antioxidant of selected medicinal plant was evaluated. Free radical scavenging activity by DPPH and nitric oxide radical scavenging method was employed for the selected medicinal plant to determine its anti oxidant activity.

MATERIALS AND METHODS

Plant material

Myxopyrum serratulum A.W HILL(Family oleaceae) was collected and authenticated by Dr. V. Chelladurai, Research Officer-Botany (retired), C.C.R.A.S. Govt of India. The fresh plant material (aerial parts) was collected and dried under shade. They are cut into small pieces & powdered using mechanical grinder. Powdered materials are passed through sieve no 40 & stored in tight container for future work

Preparation of extract

The selected medicinal plant *Myxopyrum serratulum* (aerial parts) were dried and powdered. Successive solvent extraction was carried out by cold maceration process. The solvent was concentrated under reduced pressure.The chemical constituents of the extract were determined using qualitative analysis and they are confirmed by the thin layer chromatography. The dried extract was stored at 4°C. The methanolic extract is used to determine the free radical scavenging activity like DPPH and nitric oxide scavenging method. All extractive solvents used are analytical grade (AR).

DPPH free radical scavenging activity [4, 5]

The free radical scavenging activity of the extracts was determined using DPPH assay method. The reaction mixture consists of 0.3 mM in 100% ethanol (1ml) and test extracts (3ml) dissolved in ethanol at various concentrations (30-1200 µg/ml). The prepared mixture was shaken at frequent intervals and allowed to stand for 30 minutes at room temperature. The absorbance of chromophore is measured at 517 nm using a Double beam spectrophotometer. Vitamin C was used as a positive control

Percentage inhibition = (Abs Control –Abs Sample) X 100/ Abs Control

Nitric oxide radical scavenging activity [6, 7]

Aqueous solution of sodim nitroprusside spontaneously generates nitric oxide which interacts with oxygen to produce nitrite ions. It was measured using Griess reagent. Sodium nitroprusside (3ml of 10 mM) was allowed to mix with 2.0 ml of extract and reference compound of different concentrations (30 – 1200 µg/ml) using phosphate buffer. The mixture was then incubated at 25°C for 60 min. The similar procedure was carried out using methanol as blank, which served as control. An aliquot of 5.0 ml incubated sample was removed and diluted with 5.0 ml of Griess reagent (1% sulphanilamide, 0.1% naphthyl ethylene diamine dihydrochloride in 2% H_3PO_3). The absorbance of the chromophore formed during diazotization of nitrite ions and subsequent coupling with naphthyl ethylene diamine dihydrochloride was measured at 546 nm.

Vitamin C was used as a positive control

Percentage inhibition = (Abs Control –Abs Sample) X 100/ Abs Control

Statistical analysis

All the values are expressed in mean SEM and one-way ANOVA using Dunnet's test was performed.

RESULTS AND DISCUSSION

Free radical scavenging capacity of Methanolic extract at different concentrations was determined. Antioxidant reacts with DPPH and converts to 1, 1-diphenyl-2-picrylhydrazine. The Methanolic extract of *Myxopyrum serratulum* exhibits better anti oxidant activity with maximum inhibition of about 81.75% at 250 µg/ml which is comparable to standard Vitamin C (Table 1)

In the Nitric oxide radical scavenging activity the methanolic extract showed the highest effectiveness with inhibition values of 84.95% at 250µg/ml which is comparable to standard drug (Table 2).

Table 1: Effect of methanolic extract of *Myxopyrum Serratulum* on DPPH radical scavenging activity

S. No.	Plant Extract	Percentage inhibition						
		30 µg/mL	60 µg/mL	120 µg/mL	250µg/mL	500 µg/mL	1000 µg/mL	1200 µg/mL
1	Methanolic extract	47.25%	60.32%	72.28%	81.75%	79.56%	78.42%	56.94%
3	Vitamin C	45.72%	57.82%	62.33%	83.45%	70.84%	80.93%	78.26%

Table 2: Effect of methanolic extract of *Myxopyrum Serratulum* on Nitric oxide radical scavenging activity

S. No.	Plant Extract	Percentage inhibition						
		30 µg/mL	60 µg/mL	125 µg/mL	250µg/mL	500 µg/mL	1000 µg/mL	1200 µg/mL
1	Methanolic extract	63.65%	69.92%	75.43%	84.95%	81.90%	81.35%	80.23%
3	Vitamin C	65.72%	72.82%	79.33%	84.20%	84.10%	82.65%	82.43%

CONCLUSION

The Methanol extract of the selected medicinal plant *Myxopyrum serratulum* (aerial parts) was carried out in different concentrations for performing *in vitro* anti-oxidant activities. The Methanol extract showed marked anti oxidant activity which was compared with Positive control like ascorbic acid. The Future research work can be extended to isolate active constituents from the selected medicinal plant.

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