Antioxidant Activity of *Pseudarthria viscida*

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Antioxidant activity of the crude methanol extract of *Pseudarthria viscida* (L) Wight and Arn. stem and root was performed by1,1-diphenyl-2-picrylhydrozyl (DPPH) radical quenching assay and reducing power test models. Both stem and root extracts exhibited potential antioxidant activity in both the assays.

Key words: Antioxidant activity, *Pseudarthria viscida*, DPPH radical, Reducing power

Pseudarthria viscida (L) Wight and Arn. (Fabaceae) is a shrub. The roots are stringent, thermogenic, digestive, anthelmintic, antiinflammatory, diuretic, aphrodisiac, nervine, cardio and rejuvenating tonic. They are useful in vitiated conditions of cough, bronchitis, asthma, tuberculosis, helminthiasis, diarrhoea, inflammation, cardiopathy, fever, hemorrhoids, gout, diabetes, hyperthermia and general debility[1]. The extracts of leaf, root, stem and callus obtained from *P. viscida* showed significant inhibitory activity against some fungal pathogens causing major diseases in crop plants and stored food grains[2]. The present investigation was undertaken to evaluate the antioxidant activity of stem and root extracts of *P. viscida*.

The plant material was collected from Kerala and authenticated by the Botanical Survey of India (Southern Circle) Government of India, Coimbatore. The stem and roots were shade dried and powdered. They were exhaustively extracted in Soxhlet apparatus with methanol. Phytochemical analysis of methanol extracts of stem and root was done[3]. Antioxidant activity of the plant extracts was studied by 1,1-diphenyl-2-picrylhydrozyl (DPPH) radical quenching assay and reducing power test models. *In vitro* DPPH radical scavenging activity was carried out by adopting the method of Blois[4]. Different concentrations of the extracts (1000, 500, 250, 125, 50, 25, 10 µg/ml) were prepared and subjected to antioxidant tests. To 500 µl of each of the extracts, 5 ml of 0.1mM methanol solution of DPPH was added, vortexed, followed by incubation at 27° for 20 min. The control was prepared without any extract and absorbance of the sample was measured at 517nm using UV/VIS Spectrophotometer (ELICO SL-177, Elico ltd, Hyderabad). Radical scavenging activity was expressed as % inhibition of DPPH radicals. IC_{50} value was also calculated. The reducing power of the extracts was carried out by using the method of Oyaizu[5]. Different concentrations of the extracts (1000, 500, 250 and125 µg/ml) were prepared. To all the test tubes 2.5 ml of Sodium phosphate buffer followed by 2.5 ml of 1% Potassium ferrocyanide solution was added. The contents were vortexed well and then incubated at 50° for 20 min After incubation, 2.5 ml of 10% trichloroacetic acid was added to all the tubes and centrifugation was carried out at 3000 rpm for 10 min. To 5 ml of the supernatant, 5 ml of distilled water was added. To this about 1 ml of 1% ferric chloride was added to each test tube and incubated at 35° for 10 min. The absorbance was read at 700

TABLE 1: PHYTOCHEMICAL ANALYSIS OF *P. VISCIDA*

Chemical components	Stem	Root
Alkaloids	+	+
Steroids and Sterols	-	-
Flavonoids	+	+
Tannins and Phenolic compounds	+	+
Carotenoids	-	-
Glycosides	-	-
Saponins	+	+

+indicates presence of compounds; -denotes absence of compounds

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TABLE 2: FREE RADICAL SCAVENGING ACTIVITY OF *P. VISCIDA* BY DPPH RADICAL INHIBITION

Concentration (µg/ml)	Stem Inhibition (%) Mean±Std[a]	IC_{50} (µg/ml) Mean±Std[a]	Root Inhibition (%) Mean±Std[a]	IC_{50} (µg/ml) Mean±Std[a]
1000	94.54±0.432		86.20±0.094	
500	94.1±0.163		85.13±0.817	
250	75.03±0.368		82.8±0.496	
125	68.63±1.59		69.76±0.786	
50	56.9±0.409	31.01±0.091	59.2±0.432	23.78±0.098
25	48.36±0.459		51.32±0.093	
10	40.32±0.356		41. 65±0.612	
Ascorbic acid (IC_{50})			11.24±0.022	

[a]denotes Mean ±Std at 95% Confidence Interval

TABLE 3: REDUCING POWER ACTIVITY OF *P. VISCIDA*

Concentration (µg/ml)	Absorbance at 700 nm inhibition (Mean±Std[a]) Stem	Root
1000	0.929±0.0301	0.713±0.0387
500	0.571±0.0443	0.488±0.0602
250	0.382±0.0946	0.382±0.0946
125	0.388±0.0602	0.118±0.0602
Control	0.094±0.001	0.082±0.4066
Ascorbic acid {1000 (µg/ml)}		1.634±0.045

[a]denotes Mean±Std at 95% Confidence Interval

nm .The reducing power of the methanol extract was linearly proportional to the concentration of the sample. Ascorbic acid was taken as reference standard. The result of phytochemical analysis was recorded in Table 1. Both the stem and root extracts of *P. viscida* exhibited potential antioxidant activity in the both the assay models (Tables 2 and 3). The methanol extracts from stem and root of *P. viscida* showed potent antioxidant activity based on the DPPH and reducing power tests in dose dependent manner. The stem and root extracts strongly scavenged DPPH radicals with the IC_{50} being 31.01±0.091 and 23.78±0.098 µg/ml, respectively. It also caused significant elevation of reducing power. The higher absorbancy at high concentration indicates the strong reducing power potential. The presence of phenolic compounds might be responsible for the antioxidant activity

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