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Effect of aqueous extract of aerial part of *Peperomia pellucida* (L.) Kunth.on Fe^{++} reduction

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Abstract
Plant based medicines are started using for curing diseases and disorders since long time onwards. A plant is medicinally active because of the presence of secondary metabolites. In the present study *invitro* antioxidant study of the aqueous extract of the aerial part of the plant was evaluated and it was found to be a potent antioxidant. The antioxidant property exhibited by the plant extract could be due to the presence of various secondary metabolites present in the plant.

Keywords: *Peperomia pellucida*, Aqueous extract, Ortho-phenanthroline.

Introduction
The essential values of some plants have long been published but a large number of them remain unexplored as yet. So, there is a necessity to explore their uses and also to conduct pharmacognostic and pharmacological studies to ascertain their therapeutic properties. The knowledge of medicinal plants has been accumulated in the course of many centuries. There is no authentic record of medicines used by the primitive man. The primitive man used herbs as therapeutic agents and medicaments, which they were able to procure easily.[1]
Antioxidants are substances that can prevent damage to cells caused by free radicals that the body produces as a reaction to environmental and other pressures. They are also called as free radical scavengers. The sources of antioxidants may be natural or sometimes artificial. Certain plant-based foods are rich source of antioxidants. Plant based antioxidants are also called as phytonutrient, or plant-based nutrient.
Peperomia pellucida (L.) Kunth belongs to the Piperaceae family and has long been used empirically as a traditional medicine by the communities of Indonesia, Philippines, India, Nigeria, Brazil, and other countries. The herb of *P. pellucida* has chemical constituents with potential activities such as analgesic, anti-pyretic, anti-inflammatory, anti-diabetic, anti-gout, anti-hypertensive, anti-oxidant and anti-bacterial.[2]
The phytochemical screening of aqueous ethanolic extract of leaf of the *Peperomia pellucida* shows the presence of carbohydrates, alkaloids, flavonoids, glycosides, phenols, saponins, steroids, terpenoids and tannins. The pharmacological action of the crude drug is largely depending on the metabolites present in it.[3]

Fig 1: Peperomia pellucida.

Reduction of ferric ions by ortho-phenanthroline method.

Ortho substituted phenolic compounds are found more active than unsubstituted phenol. Hence, these compounds may exert pro-oxidant effect by interacting with iron. In the presence of scavenger, reduction of ferric ions will occur which is measured at 510 nm.[4]

The reaction mixture consisting of 1ml ortho-phenanthroline, 2 ml ferric chloride 200 mM and 2 ml of various concentrations of the extracts were incubated at ambient temperature for 10 min. The absorbance of the same was measured at 510 nm. The experiment was performed in triplicate. Th percentage of scavenging can be calculated from the following formula;

$$\% \text{ Scavenging} = \frac{\text{Control} - \text{Test}}{\text{Control}} \times 100$$

Result

Flavonoids are well documented to have potent antioxidant and free radical scavenging activity.[5] The aqueous extract of the whole plant of *Peperomia pellucida* was found to be rich in phenolic and tannin content. Polyphenolics and tannins are proven good natural antioxidants.[6]

Table.1: Effect of aqueous extract of *Peperomia pellucida* on Fe^{++} reduction.

S.No.	Conc. µg/ml	Aqueous extract of *Peperomia pellucida*		Ascorbic acid (Reference Standard)	
		Absorbance	% Scavenging	Absorbance	% Scavenging
1	5	0.011	10.16	0.029	19.59
2	10	0.029	15.27	0.035	29.25
3	15	0.035	32.10	0.065	35.10
4	25	0.049	45.95	0.082	49.30
5	50	0.053	53.11	0.095	64.27
6	100	0.065	65.72	0.125	78.35
7	250	0.079	79.22	0.149	88.55
8	500	0.085	87.45	0.207	93.50
9	1000	0.099	98.30	0.495	99.11
10	**Control**	0.025		0.022	

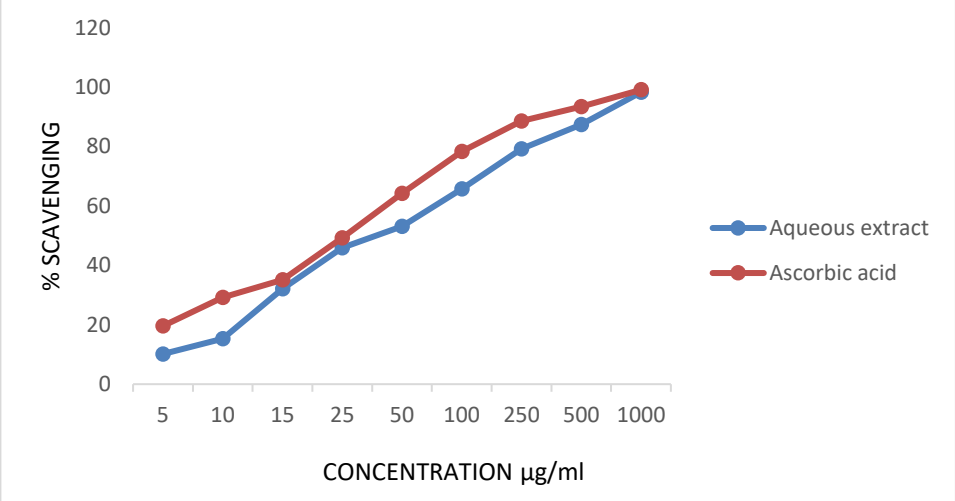

Fig 2: Effect of aqueous extract of *Peperomia pellucida* on Fe^{++} reduction.

In our study the aqueous extract showed good free radical scavenging activity in Fe^{++} reduction. The antioxidant activity exhibited by the aqueous extract of the plant drug could be due to the presence of flavonoids, tannins and phenolic compounds present in the plant. The various therapeutic properties shown by the plant could be due to its antioxidant activity.

Conflict of interest: Nil

References

1. Bakhru H.K. Introduction-In herbs that heal natural remedies for good health. Orient paperback. 1992; 17:121-125.
2. Ahmad I, Hikmawan BD, Sulistyarini R, Mun'im A. *Peperomia pellucida* (L.) Kunth herbs: A comprehensive review on phytochemical, pharmacological, extraction engineering development, and economic promising perspectives. J Appl Pharm Sci. 2022; 0(00): 001-009.
3. Hanani E, Ladeska V, Astuti AC. Pharmacognostical and Phytochemical Evaluation of Indonesian *Peperomia pellucida* (Piperaceae). International Journal of Biological & Pharmaceutical Research. 2017; 8(1):10-17.
4. Sreejayan N, Rao M. N. A. Free radical scavenging activity of curcuminoids. Drug Research. 1996; 46: 169.
5. Rajnarayanan K et.al Bioflavonoids, classification, Pharmacological, Biochemical, effects and therapeutic potential, Indian Journal of Pharmacology. 2001; 33:2-16.
6. Rao M, Kumar M.M, Rao M.N.A. In vitro and in vivo effects of phenolic antioxidants against cisplatin-induced nephrotoxicity. J Biochem (Tokyo).1999; 125: 383-390.