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Der Pharmacia Lettre, 2011: 3 (4) 248-251
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Antioxidant activity of ethanolic extracts of *Clerodendrum viscosum vent* and *Biophytum condolleanium wight*

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ABSTRACT

The present study was to estimate the in-vitro antioxidant activity of whole plant of ethanolic extract of the *Biophytum condolleanium wight* and *Clerodendrum viscosum vent*. The dry powder was extracted with ethanol. Phytochemical test shows that extract contains higher level of total tannis and flavonoids. The extracts was screened for its potential antioxidant activities using DPPH scavenging activity, the in-vitro antioxidant assay showed *Biophytum condolleanium wight* posses potent antioxidant activity when compared with *Clerodendrum viscosum vent*. So *Biophytum condolleanium wight* could be useful for preparation of neutraceuticals as potent antioxidant to treat cancer and various human diseases and its complications.

Key Words: Flavonoids, DPPH, Antioxidant, *Biophytum condolleanium wight*, *Clerodendrum viscosum vent*.

INTRODUCTION

Medicinal plants are believed to be an important source of new chemical substances with potential therapeutic effects. Herbalism is a traditional medicinal or folk medicine practice based on the use of plants and plant extracts[1]. Free radicals play an important role in most major health problems such as Cancer, Cardiovascular Diseases, Rheumatoid Arthritis, Cataract, Alzheimer's disease and other Degenerative diseases associated with aging. Antioxidants are beneficial components that neutralize free radicals before they can attack cells and hence prevent damage to cell proteins, lipids and carbohydrates. Interest in the role of antioxidants in human health has prompted research in the fields of food science and medicinal herbs to assess the role of herbs as antioxidants [2]. *Clerodendrum viscosum vent* (verbenaceae) has been used as an

antiseptic, anti inflammatory, antipyretic, vermifuge, and leprosy and skin diseases [3]. *Biophytum condolleianum wight* (oxalidaceae) has been used as a anti-diabetic[4]

The objective of this study is to Comparison antioxidant activities of whole plant ethanolic extract of *Biophytum condolleianum wight* and *Clerodendrum viscosum vent* and using in vitro free radical scavenging activity by DPPH (2, 2-diphenyl-1-picrylhydrazyl) method.

MATERIALS AND METHODS

Plant material

The whole plant of *biophytum condolleianum wight*, *clerodendrum viscosum vent* were collected from the place, hills area in Coimbatore (Tamilnadu) and authenticated by Prof.A.Joseph Clement, Department of botany, Govt. Arts College ,Coimbatore , Tamilnadu.

Extraction procedures:

The whole plant dried, broken into small pieces and powered coarsely. About 100 gm of air dried powdered material was extracted with ethanol in a soxhlet extractor for 36 hours. It was concentrated to dryness under reduced pressure and controlled. Temperature (40-50° C) using rotary evaporator. The ethanolic extract yielded a green Sticky mass weighing 6.955g. [5, 6]

Phytochemical evaluations:

The ethanolic extract of *biophytum condolleianum wight*, *clerodendrum viscosum vent* was subjected to the qualitative chemical test for the identification of various active constituents [7, 8].

Evaluation of in vitro antioxidant activity

DPPH is a stable free radical that reacts with compounds that can donate an electron. This method is based on the scavenging of DPPH through the addition of a radical species or an antioxidant that decolorizes the DPPH solution. The assay was carried out in a 96 well microtitre plate .to 200µl of DPPH solution 10 µl of each of the test sample or the standard solutions was added separately in wells of the microtitre plate. The final concentration of the test and standard solutions used are 1000 to 1.95 µl/ml. The plates were incubated at 37° C for 20 minutes and the absorbance of each solution was measured at 490nm. The radical scavenging activity was calculated using the following formula

$$\text{DPPH radical scavenging activity (\%)} = \frac{[(\text{Abs control} - \text{Abs sample}) / (\text{Abs control})] \times 100,}{}$$

Where,

Abs control is the absorbance of DPPH radical + methanol and Abs sample is the absorbance of DPPH radical + sample extract/standard.

The results are expressed as percentage inhibition of DPPH and mean inhibitory concentrations (IC₅₀) determined from a plot of absorbance of DPPH versus concentration of extract. [9, 10, 11]

RESULTS AND DISCUSSION

Phytochemical Constitution

Ethanollic extract of the two plants showed (Table: 1) the presence of tannins flavanoids, sterols, triterpenoids carbohydrate. May be presence of tannins and flavanoids which are proved to have antioxidant property.

Table 1: list of phytochemical constitution

Sr. No	Phytochemical constitution	<i>Biophytum Condolleeanum Wight</i>	<i>Clerodendrum Viscosum Vent</i>
1	Flavonoids	Positive	Positive
2	Tannis	Positive	Positive
3	Sterol And Triterpenoids	Positive	Positive
4	Carbohydrate	Positive	Positive
5	Cardiac glycosides	Positive	Negative
6	Anthroquinone glycosides	Negative	Positive
7	Alkaloids	Negative	Negative
8.	Saponin	Negative	Negative
9	Oil And Waxes	Negative	Negative
10	Resins	Negative	Negative
11	Proteins and amino acids	Negative	Negative

DPPH scavenging activity

Whole plant ethanollic extract of *biophytum condolleeanum wight* and *clerodendrum viscosum vent* evaluated for antioxidant activity by DPPH assay and their percentage inhibition (Table: 2) were 43.100% and 50.905% respectively.

Clerodendrum viscosum vent showed excellent activity than *biophytum condolleeanum wight*. When compared to standard antioxidant ascorbic acid and rutin *clerodendrum viscosum vent* shown comparable activity.

TABLE 2: IC₅₀ values of *Biophytum Condolleeanum Wight* and *Clerodendrum Viscosum Vent*

Sr.No	Extractions	IC ₅₀ Values (µg/ml)
1	<i>Biophytum Condolleeanum Wight</i>	43.100 ±7.20
2	<i>Clerodendrum viscosum vent</i>	50.905 ±6.64

CONCLUSION

Based on the results obtained, ethanollic extract of *biophytum condolleeanum wight* showed antioxidant and free radical scavenging activity remarkably different than *clerodendrum viscosum vent* extract and major antioxidative component seems to be tannis and flavonoids. Therefore, it can be concluded that the ethanollic extract of *Biophytum condolleeanum wight* could be useful for preparation of neutraceuticals as potent antioxidant to treat cancer and various human diseases and its complications.

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