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Evaluation of Antioxidant Activities of Leaf Extract of *Premna Serratifolia*

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Abstract:

Current study aimed to analyze the antioxidant potential of various solvent extracts of *Premna serrattfolia. Premna serratifolia* leaves were collected from the natural habits of Chikkaballapura district, Karnataka. About 100 g dried leaves were coarsely powdered and subjected to successive extraction by Soxhlet extractor. The extraction was done with different solvents like chloroform, methanol and ethanol. Antioxidant assay was determined for each extract. Results revealed that DPPH radical scavenging activity of the samples increased with increasing polarity of solvents. Ethanol fraction shows *the* highest DPPH radical-scavenging activity, followed by methanol and chloroform extract. In conclusion, biological activity such as antioxidant properties of ethanolic extract of leaf o*f Premna sernaitiolla* was highest as compared to methanolic and chloroform extracts. Hence, ethanolic extract of leaf of *Premna serratifolla* could be exploited as potential drug agent of folk medicines.

Keywords- *Premna serratifalta,* Antioxidant, Ethanol, Methanol.

I. INTRODUCTION

Many drugs, which are commonly used in modern day medicines, have been derived either directly or indirectly from herbal source. In India, almost 45,000 plant species are growing naturally or being cultivated. There are so many popular Indian herbs used in traditional practices to cure various disorders of human beings. *Premna serratifolla are* potential source for natural antioxidants due to the presence of polyphenols (Lubaina *et al.*,

2016). Fiavonoids are proven antioxidants constitute a wide range of molecules that play important role in protecting biological systems against the harmful effects of oxidative burst on macromolecules such as proteins, lipids and DNA (Halliwell *et aL,* 1988). It has also reported to have p-methoxy cinnamic acid, linalool, linoleic acid, 13- sitosterol and flavone luteolin, iridoid glycoside, premnine, ganiarine and gantlarine, premnazole, aphelandrine, pentacyclic terpene bctulin, caryophellcn, prcmncnol, prcmna spirodicnc, cicrodendrin-A, etc., phytoconstitucnts in its various (Mali, 2015). It has significant towards antimicrobial activity and potent phytochemical constituents (Ripa *et al.*, 2012, Jayashri and Crajanana, 2015). The extract is comparable with the standard drug silymarin (Selvam *et al.*, 2010). It's shown good activity as compared with standard ascorbic acid (Chitra *et al.*, 2018),

Various parts of plant like leaves, stem, stem barks, root, root barks and wood are used to treat different diseases (Dianita and Jantan, 2017). It is used in folk medicine primarily to treat inflammation, immune-related diseases, stomach disorders, wound healing, and skin diseases (Rekha *et al.*. 2015). The various biological activities including antioxidant, antibacterial, anti-inflammatory, cytotoxic and heapatoprotective have been displayed both at extract and pure compound level (Rajathi and Indhumathi, 2013). *Premna serranfolta* possess significant anti-ulcer and cytoprotective effect (Rajagopal *et a,* 2014). The flower extract also showed potent antioxidant activity. The flowers of the plant showed potent antiinflammatory effect due to the presence of flavonoids. With this background, the present study was undertaken with the main aim to analyze the antioxidant potential of various solvent extracts *of Premna serratifolia.*

II. MATERIALS AND METHODS

Plant collection

Premna serranfolta leaves were collected from the natural habits of Chikkaballapura district, Karnataka. Fresh plant material was washed under running tap water, air dried and then homogenized to fine powder. The powder was stored in airtight containers at -20°C for further use.

Crude extraction

About 100 g dried leaves were coarsely powdered and subjected to successive extraction by Soxhlet extractor. The extraction was done with different solvents like chloroform, methanol and ethanol. Each time the plant material was dried and later extracted with other solvents. All the extracts were concentrated by rotary vacuum evaporator and evaporated to dryness.

Antioxidant assay

The modified literature protocol of Blois was used for antioxidani assay (13Iois, 1958), Briefly 2, 2-diphcnyl-1-picrylhydrazyl (DPPH) solution was prepared in methanol and mixed with sample solution (3mL, containing 20-I [plug) in distilled water. The control was also run which contains only distilled water. The hydrogen atom or electron donation abilities of each extracts and standards were measured from the bleaching of the purple-colored methanol solution of 2, 2-diphenyl I -picrylhydrazyl (DPPII). The absorbance was measured at 517 run after 30 min incubation, Decreasing of the DPPH solution absorbance indicates an increase of the DPP1-1 radical-scavenging activity, Scavenging of free radicals by *DPPH* as percent radical scavenging activities (%RSA) was calculated by using the formula; DPPH% = (Control abs — Extract abs / Control) x 100. The 1050 value was determined by using linear regression equation i.e. Y Mx i C; Here, Y 50, M and C values were derived from the linear graph trend

III. RESULTS AND DISCUSSION

Chloroform, methanol, and ethanol extracts leaves of *Premna serratifolta* was fractionated by soxh1ct extraction with solvents of increasing polarity. Free radicals arc known to induce oxidative damage in biomolecules and play an important role in aging, cardiovascular diseases, cancer, impaired immune system, and inflammatory diseases (Wang *et at*, 2012). In our study, the radical-scavenging activity of the all three extracts of leaves of *Premna sermtybila* was tested using the DPPH free radical. which has the advantage of being unaffected by certain side reactions, such as metal ion chelate ion and enzyme inhibition (Amarowicz *et a/*.. 2004 The scavenging activity o f the extracts tested was compared to those of ascorbic acid, used as positive control, and the DPFH radical scavenging activity of

the samples increased with increasing polarity of solvents. As shown in Table] ethanol fraction shows the highest DPPH radical-scavenging activity, followed by methanol and chloroform extract. Significant difference was observed among antioxidant activities of evaluated extracts and ethanol extract came out as a superior total antioxidant capacity. with significant higher results in all performed assays.

Table 1: Antioxidant activities of leaf extracts of *Premier serratt oha*

S. No.	Extract	$1C_{50}$ (µg/mL)
1	Chloroform extract	219.08
2	Methanol extract	228.28
3	Ethanol extract	239.37

IV. CONCLUSION

In conclusion, biological activity such as antioxidant properties of ethanolic extract of leaf of *Premna serratifolia* was highest as compared to methanolic and chloroform extracts. *Hence*, ethanolic extract of leaf *of Premna serratifolia* could be exploited as potential drug agent of folk medicines.

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