



In-Vitro Antioxidant Activities of Aqueous and Methanol Extracts of *Enicostemma littorale* Blume

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| ARTICLE INFO | ABSTRACT |
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| <p>Published Online: 28 April 2018</p> <p>Corresponding Author: Vinotha Sanmugarajah</p> | <p>The total phenolic and flavonoid contents and antioxidant potential of hot aqueous and methanol extracts of whole plant of <i>Enicostemma littorale</i> Blume was investigated. The percentage yield of hot aqueous extractive value (36.3%) was greater than the percentage yield of hot methanol extractive value (21.8%) and the total phenolic and flavonoid contents in hot methanol extract were found to be higher than in the hot aqueous extract of <i>Enicostemma littorale</i>. Overall results of in-vitro antioxidant activity assays indicated that in comparison to the standard trolox, <i>Enicostemma littorale</i> showed low antioxidant activity in DPPH, ABTS and FRAP methods. Iron chelating activity not found at highest possible concentration of both extracts. Although the total phenolic and flavonoids components were detected in the hot methanol and aqueous extracts, these does not appear to be reported a comparison between the observed in-vitro antioxidant activity and extractive values with total phenolic and flavonoids contents of <i>Enicostemma littorale</i>.</p> |

KEYWORDS: *Enicostemma littorale*, in- vitro antioxidant, Aqueous, Methanol, Extracts

I. INTRODUCTION

Antioxidants are substances which reduce oxidative damage often by inactivating free radicals. Antioxidant protect key cell components in biological systems by neutralizing the damaging effects of free radicals and increase the shelf life of lipid containing foods by delaying, retarding or preventing the development rancidity or other flavor deterioration due to the lipid oxidation [1]. According to a survey conducted by W.H.O., traditional healers treat 65% patients in Sri Lanka and 80 % in India [2].Plants are potential sources of natural antioxidants. During the past decade, researches conducted in many laboratories have shown that plants are very important sources of antioxidant and radical scavenging components [3] [4] [5].

Enicostemma littorale (*E. littorale*) is widely used in Siddha system of medicine under the name “vellarugu” [6] [7]. This plant is used in folk medicine to treat diabetes mellitus, control arthritis, rheumatism, constipation, abdominal ulcers, swelling, skin diseases and insect poisoning [8] [9] [10]. In Sri Lanka, it is found in on open, sandy places among sparse grass close to the beach throughout the dry zone particularly from northwestern to northeastern coastal belt [11].It is a rainy season herb, growing on moist, damp and shady ridgesand slopes of the borders of cultivated fields [12].

II. MATERIALS AND METHODS

A. Plant material

Whole plants of *E. littorale* were collected during the month of January 2012 in and around Jaffna District, Sri Lanka. The botanical identity of this plant was authenticated and a voucher specimen (Assess no. 2454) has been deposited in the Bandaranayaka Ayurveda Memorial Research Institute (BMARI), Nawinna, Maharahama, Sri Lanka.

B. Preparation of herbal medicine

The collected *E. littorale* whole plants were washed with tap water. The plants were cut in to small pieces and air-dried thoroughly under shade (at room temperature) for 2-3 weeks to avoid direct loss of phytoconstituents from sunlight. The shade dried materials were powdered using the pulverizer and sieved up to 80 meshes. It was then homogenized to fine powder and stored in airtight container for further analysis.

C. Chemicals

All chemicals used were of analytical grade. Folin-Ciocalteu reagent, gallic acid, quercetinkrist (C₁₅H₁₀O₇. 2H₂O),6-hydroxy-2-5-7-8-tetramethylchroman-2-carboxylic acid (Trolox), 1,1-diphenyl-2-picryl-hydrazyl (DPPH) free radical,2,2-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid) diammonium salt (ABTS), potassium persulphate, 2,4,6-tripyridyl-s-triazine (TPTZ), 4,4'-disulfonic acid sodium salt (ferrozine) and Ethylenediamine tetra acetic acid disodium