Preliminary Phytochemical Screening of Different Extracts of Whole Plant of *Enicostemma littorale* Blume

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Abstract— Herbal medicine is widely practiced from ancient periods throughout the world. These medicines are safe and environmental friendly. According to World Health Organisation 80% of the world's population relies on traditional medicine for their primary health care. In the traditional system of medicine, which dates back to many centuries, many herbal extracts are used to cure a variety of diseases. One such popularly used plant that is reported to have anti-diabetic, anti-inflammatory, anti-oxidant, hypolipidemic, and anti-arthritic effects is *Enicostemma littorale* Blume (Gentianaceae family), which is commonly known as Mamajaka (Sanskrit), Vellarugu (Tamil) and Indian gentian (English). *E. littorale* is a perennial herb with sessile lanceolate leaves which grows in coastal areas of Northern and Eastern province of Sri Lanka. It is commonly available in and around the Jaffna District during rainy season. The whole plant is dried and powdered and used to treat rheumatism, swelling, back pain, diabetes mellitus, constipation, and skin diseases.

The aim of the present study is to evaluate the phytochemical constituents in different extracts of *E. littorale* and quantification of some of the active constituents like alkaloids, flavonoids and saponins in whole plant of *E. littorale*.

The phytochemical screening of the hot and cold ethanol, methanol, and water extracts of whole plant of *E. littorale* were carried out using standard procedures, to detect the presence of different secondary metabolites such as alkaloids, flavonoids, saponins, tannins, etc. Total alkaloid and flavonoid contents were determined according to the methods described by *Aliyu et al* (2008). Saponins were determined according to the method described by World Health Organisation (WHO 1998).

The preliminary phytochemical screening of hot and cold ethanol, methanol and water extracts showed the presence of alkaloids, saponins, flavonoids, steroids, tannins, proteins, reducing sugar coumarins and quinones and absence of anthraquinones. Cold and hot water extracts showed the presence of fat and fixed oil. Higher flavonoid, coumarin and quinone contents were found in the ethanol (cold & hot) and methanol extracts than in the cold and hot water extracts of whole plant of *E. littorale*. The total alkaloid (20% acetic acid extract) and flavonoid (80% of aqueous methanol extract) contents were found to be 2.25 ± 0.01 % and 25.34 ± 0.24 % respectively and total saponin (hot water extract) content was (Foaming Index) FI < 100.

The phytochemicals identified in the present study may be used as tools for quality control of drugs prepared with *E. littorale* in the future, for the treatment of a variety of disease conditions.

Keywords: *Enicostemma littorale*, Different extracts, Phytochemical screening

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