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**COMPARATIVE PHYTO-PHYSCOCHEMICAL STUDIES ON  
SELECTED MEDICINAL PLANTS, ENICOSTEMMA LITTORALE  
BLUME AND WITHANIA SOMNIFERA DUNAL**

**Vinotha Sanmugarajah<sup>1\*</sup>, Ira Thabrew<sup>2</sup>, Sri Ranjani Sivapalan<sup>1</sup>**

<sup>1</sup>Unit of Siddha Medicine, University of Jaffna, Sri Lanka.

<sup>2</sup>Institute of Biochemistry, Molecular Biology and Bio technology, University of Colombo, Sri Lanka.

**ABSTRACT**

Medicinal plants have been a major source of treatment for human diseases since time immemorial. The physicochemical evaluation of the plant material is an important parameter in detecting adulteration or improper handling of drugs. The present study was planned to compare the phyto-physicochemical analysis of *Enicostemma littorale* Blume (Whole plant) with *Withania somnifera* (L) Dunal (root). Both plants are medicinally important and used as anti-arthritic, anti-inflammatory, antioxidant and hepatoprotective. These plant materials were phyto, physico-chemically standardized according to the methods recommended by the World Health Organization and standard laboratory procedures. The highest percentage of hot water and ethanol extractable matter; total ash and acid insoluble ash ( $37.21 \pm 1.27\%$  &  $24.92 \pm 0.64\%$ ,  $8.16 \pm 0.1\%$  &  $1.89 \pm 0.1\%$ ) were found in *E. littorale* when compared with *W. somnifera* ( $30.82 \pm 1.09\%$  &  $10.0 \pm 0.21\%$ ,  $5.76 \pm 0.1\%$  &  $0.63 \pm 0.04\%$ ). Percentage of loss on drying was found in *W. somnifera* ( $9.12 \pm 0.10\%$ ) and it was slightly lower than *E. littorale* ( $10.25 \pm 0.33\%$ ). Preliminary phytochemical screening of these both plant materials revealed that presence of alkaloids, saponins, flavonoids, steroids, tannins, proteins, reducing sugar, fat and fixed oils and coumarins. This comparative information provides immense potential for studying their activities for arthritis and other disease conditions, both in pre-clinical and clinical stages, which lead to the preparation of useful pharmaceutical products. The present study has authenticated the usefulness of the identified plants for medicinal purposes. These species could also be seen as potential source of useful drugs due to their rich contents of phytochemical.

**Keywords:** Comparative study, Physicochemical, Phytochemical, *Enicostemma littorale*, *Withania somnifera*.

**INTRODUCTION**

Medicinal plants have been used for years in daily life to treat diseases all over the world. Interest in medicinal plants reflects the recognition of the validity of many traditional claims regarding the value of natural products in healthcare [1]. The medicinal value of these plants lies in some chemical substances that produce a definite physiological action on the human body [2]. Plants, besides providing nutrition, have always formed an important source of chemical compounds as secondary metabolites, which can be used for medicinal purposes [3]. The pharmacognostical parameters are major and reliable criteria for confirmation of the identity and determination

of quality and purity of the crude drugs [4]. Pharmacognosy is a simple and reliable tool, by which complete information of the crude drug can be obtained [5]. The process of standardization can be achieved by stepwise pharmacognostic studies. These studies help in identification and authentication of plant material. Correct identification and quality assurance of the starting materials are an essential prerequisite to ensure reproducible quality of herbal medicine which will contribute to its safety and efficacy [6]. *Enicostemma littorale* Blume (Gentianaceae) is a glabrous perennial herb. It grows throughout India up to 1.5 feet height and more frequently near the sea [7]. It is called as 'Mamajaka'