Abstract No: TO 29

Two Potentially Wound Healing Active Compounds from the Hexanes Extract of *Vernonia zeylanica* (L.) Less

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Vernonia zeylanica (L.) Less. (Asteraceae) is an under-shrub endemic to Sri Lanka. Different parts of this plant have been used as a remedy for various kinds of wounds in the indigenous medicine practiced in Sri Lanka. The present study was carried out to investigate the wound-healing potential of the aerial parts of *V. zeylanica*. Hexanes, dichloromethane, ethyl acetate and methanol extracts of the aerial parts of *V. zeylanica* were obtained by sequential extraction of the dried plant material with the respective solvents in an orbital shaker at room temperature (30 ± 2 ºC) for 24 h. Each extract was assayed for its cell migration enhancement ability by scratch wound assay (SWA) at a concentration of 20 mg/L on Madin-Darby Canine Kidney (MDCK) cells. The cell migration ability was expressed as the mean percent wound closure at 24 h. Of these four extracts, the highest mean percent wound closure (88.9%) was shown by the hexanes extract. Bioactivity-guided fractionation of the hexanes extract of aerial parts of *V. zeylanica* led to the identification of a fraction having enhanced cell migration activity (90.3%) at a concentration of 10 mg/L. Further investigation of this active fraction led to the identification of two cell migration enhancing active constituents, ethuliacoumarin (67.0%) and stigmasterol (73.5%) at a concentration of 12.5 µM. The identity of stigmasterol was confirmed by the comparison of ^{1}H-NMR and ^{13}C-NMR data with those reported. The structure of ethuliacoumarin was elucidated by the extensive usage of spectroscopic techniques including 1D and 2D NMR spectroscopy and confirmed by the comparison of NMR data with those reported. Ethuliacoumarin is a rare monoterpene 5-methylcoumarin, which has been previously reported from *Ethulia conyzoides* and *Vernonia brachycalyx*. However, this is the first report of the presence of ethuliacoumarin and stigmasterol from *V. zeylanica*.

Keywords: *Vernonia zeylanica*, Asteraceae, Madin-Darby Canine Kidney (MDCK) cells, Scratch Wound Assay (SWA), Wound healing activity.

Acknowledgement: Financial assistance from NSF grant No: NSF/PSF/ICRP/2017/HS/02 is gratefully acknowledged. We are thankful to the National Herbarium, Department of National Botanical Gardens, Peradeniya, Sri Lanka for authentication of the plant material.