ABSTRACT

Wounds are the results of injuries to the skin that disturb the soft tissue. It can occur in various ways. The search for more effective and lower cost therapeutic approaches for wound healing remains a challenge for modern medicine. Plants, parts of plant and plant based preparations which include medicinal oils have been used for the treatment of wound healing in Ayurveda and indigenous system of medicine in Sri Lanka. 'Pinda Oil' is one of the reputed wound healing medicinal oil used in indigenous medicine and Ayurvedic system of medicine in Sri Lanka. Wound healing activity and the mechanism of action of the oils in wound healing has not be studied. Therefore, a systematic study of 'Pinda Oil' to identify the active constituents and/or active fractions responsible for wound healing is undertaken.

The present study was designed to identify the potential of wound healing active fractions and /or compounds from *Cryptolepis buchanani, Glycyrrhiza glabra* and *Rubia cordifolia* using Scratch Wound Assay (SWA).

Wound healing potential of the extractives and fractions were evaluated using Scratch Wound Assay (SWA) on Baby Hamster Kidney (BHK 21) and Madin-Darby Canine Kidney (MDCK) cell lines as an *in-vitro* model. Antibacterial assay was carried out by Kirby - Bauer disc diffusion method. Preliminary studies on the solvent extracts, Hexane, CH_2Cl_2 and EtOAc obtained showed wound healing activity on SWA. SWA directed fractionation of active extract using column chromatography followed by preparative thin layer chromatography led to the isolation of 3 compounds from the hexanes extract of *C. buchanani*. Structure of one of these compounds was deduced as 2-hydroxy-4-methoxybenzaldehyde (**61**)

while another compound was tentatively identified as lupeol ester (**62**) by using spectroscopic data (^{1}H NMR, ^{13}C NMR, HSQC and gHMBC). Structure of the third compound $CbH_3F_4B_2$ was not elucudated. TLC comparison of hexane fraction 'Pinda Oil' with the three compounds isolated from *C buchanani* were showed that all the compounds were present in 'Pinda Oil'. The hexanes fraction of 'Pinda Oil' showed potential of wound healing activity and it may due to the presence of these 3 compounds. Studies on mechanism of action of lupeol ester (**62**) and $CbH_3F_4B_2$ showed that they were present in the cytoplasma of cells after penitrating through the intercelluler liquid. This observation indicated that these compounds enter the cells during the incubation period and enhance the wound healing activity on MDCK cells.