OP-10

Efficacy of Two Different Methods of Extraction of Camptothecin from *Ophiorrhiza mungos*

G.A. Ranasinghe[1], N. Salim[1], U G. Chandrika[2], A.M. Abeysekera[3]

[1] *Department of Botany, Faculty of Applied Science,* [2] *Department of Biochemistry, Faculty of Medical Sciences, 3 Department of Chemistry, Faculty of Applied Sciences, University of Sri Jayewardenepura, Sri Lanka.*
E.mail: nsalim7@yahoo.com

Camptothecin (CPT) is one of the most promising anticancer agents of the 21st century. The objective of the present study was to investigate the efficacy of two different extraction methods that are available in the literature to extract CPT. Hot ethanol extraction method of CPT from plant tissues was compared with chloroform-methanol extraction method that has been used to extract CPT from endophytic fungi, using plant samples collected from the Colombo region. Flower buds, immature fruits and root tissues were collected from three individual plants as we have previously found higher accumulation of CPT in these tissues compared to leaves and stem. The tissues were dried at room temperature until the weight remained constant, they were separately ground to powders and 50-100 mg of dried powder of different tissue was used for extraction. For a given tissue, two equal weights were taken and CPT from one was extracted with chloroform: methanol (4:1) and that of other was extracted with 61% ethanol at 60 °C in a shaking water bath for 90 min. The residue obtained after evaporating the solvents in each method was dissolved in 3 – 5 ml of methanol (according to the weight of different tissues used) and 10 μl of this was analyzed by HPLC-DAD using a reverse phase C18 column and the presence of CPT was detected at 256 nm. Identification of CPT was carried out using chromatographic behavior in HPLC (retention time), UV absorption spectra in the mobile phase obtained by the DAD detector, their spectral fine structure and co-chromatography with added CPT standard. Quantification was carried out using external standard of CPT. Highest mean CPT content (with standard error) 669.9 ± 25.1 μg/g of dry weight (DW) was obtained from flowers, followed by immature fruits 509.2 ± 32.0 μg/g (DW) when extracted with chloroform: methanol which was more than two fold compared to the yield of that obtained when extracted in hot ethanol (275.0 ±21.3 μg/g and 211.9 ±19.0 μg/g DW respectively). The result was similar for root tissues too, although the chloroform: methanol method resulted in slightly lower yield than two fold. Our findings therefore indicate that chloroform: methanol method used to extract CPT from fungal tissues is more efficient in extracting CPT from plant tissues, being less time consuming and resulting in significantly higher yield.

Acknowledgement: University Grant ASP/06/PE/2010/ 14 is gratefully acknowledged