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Accumulation of camptothecin (CPT) in *Ophiorrhiza mungos* L., and the influence of climatic conditions on CPT content

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Camptothecin (CPT) is one of the most promising anticancer drugs of the 21st century. Currently, the CPT is extracted from two plant species, *Nothapodites nimmoniana* in India and from *Campotheca acuminata* in China which is not sufficient to meet the existing global demands. *Ophiorrhiza mungus* L. (Dathkatiya, family Rubiaceae) a small shrub, is also known to produce this alkaloid, but no comprehensive study has been made so far to investigate the feasibility of using this plant as a source of the drug. In view of this, a preliminary investigation was carried out to establish the basic patterns of accumulation of CPT in various tissues of plants growing in two different geographic regions. Chloroform: methanol (4:1) extracts of leaf, stem, root, flowers and immature fruits of *O. mungos*, collected separately from four different plants growing in each locality were tested and CPT was identified by high performance liquid chromatography (HPLC) and thin layer chromatogrphy (TLC). The quantification of CPT was done by HPLC–DAD using a reverse phase C18 column with detection at 256 nm. In plants grown in the Colombo region, the highest mean content of CPT, 611.9 ± 67.2 µg/g (dry weight basis) was observed in immature fruits followed by flowers (586.8 ± 60.5 µg/g), roots (316.2 ± 12.3 µg/g) and stem (218.4 ± 16.5 µg/g) while the leaves contained the lowest (81.3 ± 1.3 µg/g). A similar pattern of accumulation of CPT was observed in the root, stem and leaf tissues of the plants of Deraniyagala origin but the concentration of CPT was far greater than in those grown in Colombo. Of the tested samples, the highest mean value of 1429 ± 26.17 µg/g of CPT was observed in root tissues of the Deraniyagala plants which was about five-fold higher than that of root tissues of the Colombo plants. These preliminary results revealed an enormous influence of climatic conditions on the CPT content while indicating the potential of further screening of *O. mungos* plant to identify high yielding sources.

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