Large Scale Isolation of Camptothecin From \textit{Nothapodytes foetida}: An Improved Process*

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ABSTRACT
Camptothecin is a cytotoxic quinoline alkaloid which inhibits the DNA enzyme Topoisomerase I (Topo I), discovered in 1966 by M. E. Wall and M. C. Wani. It was isolated from the bark and stem of Camptotheca acuminata. The improved process for the isolation of Camptothecin not only avoids the use of tedious and time consuming extraction and purification methods, but also increases the yield of the compound.

KEY WORDS Notapodytes foetida, Camptothecin, 9-Methoxy Camptothecin, topoisomerase (Topo-I), Camptotheca acuminata.

INTRODUCTION
Camptothecin is one of the most significant anticancer molecule due to its property to block the topoisomerase (Topo-I), a DNA replication enzyme, by stopping cell division. This compound was originally isolated from Camptotheca acuminata by Prof Wall et al [1]. Camptothecin was isolated from the plant \textit{Nothapodytes foetida} (\textit{Mappia foetida}) Miers (Icacinaceae) in India. It is a small tree mainly found in Western Ghats. Govindachari et al [2] reported the isolation of Camptothecin from the plant. There are various reports in the literature on extraction, fractionation, isolation and precipitation of Camptothecin, but none of the method is found to be effective due to poor yield, time consuming, requirement of more solvent etc.

MATERIALS AND METHODS
The improved process comprises of drying, grinding and hot extraction of \textit{N. foetida} with methanol, under continuous stirring. The solvent then removed under vacuum preferably at a temperature in the range of 35-40° C. The crude extract thus obtained thereby is then defatted cold with hexane. The defatted material is treated with dichloromethane in order to obtain the soluble portion. Removal of solvent gives dried fraction of dichloromethane. The dried dichloromethane fraction was then precipitated with a mixture of acetonitrile and dichloromethane to get pure Camptothecin with upto 0.15\% yield.
ADVANTAGES
The present process involves simple extraction, precipitation and filtration methods for the purification of Camptothecin, which are easy, less time taking and inexpensive. It uses 2-5 times less amount of solvents, electricity, man power and time with compare to other processes.

BE AWARE
Though Camptothecin is one of the most significant anticancer molecule, its isolation process involves toxic side effects on skin. It can cause dark patches on face. This is due to the 9-Methoxy Camptothecin.

REFERENCES

*Part of his paper presented during poster session in Fourteenth Annual International Conference from 15-18 Jan 2010 of Indian Society of Chemists and Biologists at CDRI Lucknow.

CITATION OF THIS PAPER