

ABSTRACT

Reports of the successful production of vinblastine and vincristine in tissue cultured cells of Catharanthus roseus are yet to be published.

In these experiments two approaches were examined in an effort to recover the two alkaloids from tissue cultured cells of the plant. In the first study C. roseus plants were generated from callus tissue and at various points during the regeneration process were extracted and analysed for vinblastine and vincristine. It was intended that the stage of the regeneration path where the alkaloids were initially produced would indicate an appropriate harvesting point for recovering the dimeric alkaloids from embryogenic callus grown in biofermenters. It was discovered, however, that neither alkaloids were produced during regeneration. The presence of vindoline was detected but there was no evidence of the formation of catharanthine.

It was clear that the callus cells examined would not produce the oncolytic alkaloids under normal growth conditions examined. The second approach was therefore designed to investigate what effects exposing the cells to elicitors would have on alkaloid production. The results showed that exposure to autoclaved mycelia of a *Fusarium* fungus successfully

increased the yields of some alkaloids and stimulated the production of a new alkaloid. The dimeric alkaloids were not, however, produced.