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THE BIOSYNTHESIS OF STRICTOSIDINE

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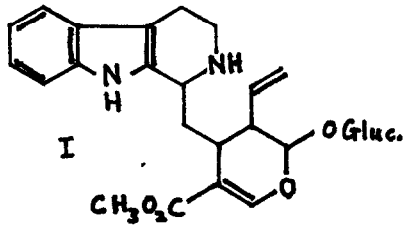
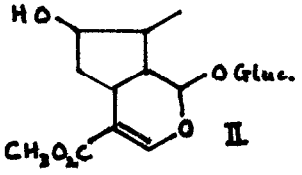
Strictosidine has been isolated from Rhazya spp., and shown to have the structure I[1]. In view of its potential as a universal intermediate on the pathway to monoterpenoid indole alkaloids[2] we are investigating its biosynthesis and also its occurrence in other plant species containing indole alkaloids. Thus it has been shown to be present in Vinca rosea by dilution analysis of plants fed with [ar-^{3}H]-tryptophan. The isolated strictosidine was purified via the penta-acetate derivative to constant activity and contained 1.0% of the administered activity.

According to current biogenetic theory the non-tryptophan portion of the molecule should be derived from a cyclopentanoid monoterpene. In order to test this, [$CO_2C^3H_3$]-loganin (II) was fed to V.rosea plants. The strictosidine isolated and purified to constant activity had incorporated 5.2% of the activity. The activity was retained on transformation to vallesiachotamine[1], which upon reduction with lithium aluminium hydride afforded inactive material showing that all the label present was in the carbomethoxy group.

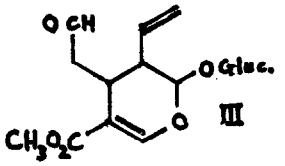
These results are consistent with the derivation of strictosidine from tryptophan and a secocyclopentanoid monoterpene (III). The possible role of strictosidine as a precursor of the three major groups of indole alkaloids is under investigation.



I



II



III

References

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