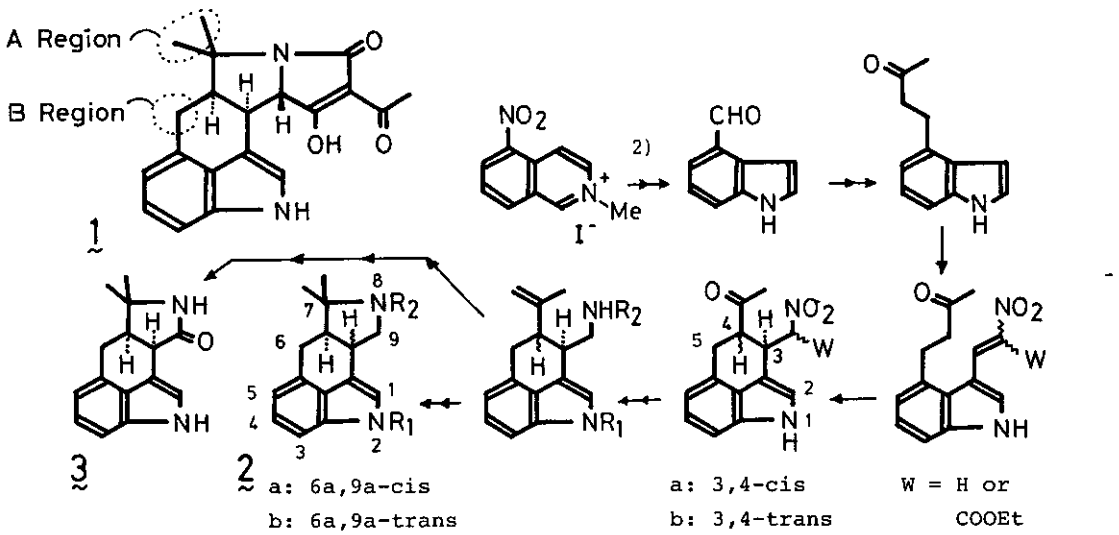
SYNTHETIC STUDY DIRECTED TOWARD CYCLOPIAZONIC ACID

Masanori Somei, Shoichi Tokutake, and Chikara Kaneko
Faculty of Pharmaceutical Sciences, Kanazawa University, Kanazawa 920, Japan

Cyclopiazonic acid (1) is a toxic substance isolated from Penicillium cyclopium Westling by Holzapfel[1] in 1968. We have interested in its unique structure and biological activity and planned to synthesize the alkaloid and various related derivatives, especially having substituents at the A and/or B regions.

Our synthetic idea is as follows: functionalyzation of A and/or B regions should be attained in the course of the synthesis only by changing the reagents without changing the type of the reactions.

Based on the above idea, we have selected and developed the following synthetic approach and succeeded for the first time in the preparation of key synthetic intermediates (2, 3) having 6a,9a-trans- and cis-6,6a,7,8,9,9a-hexahydro-2H-isoindolo[4,5,6-cd]indole skeleton. These results will be discussed.



1) C.W. Holzapfel, Tetrahedron, 24, 2101 (1968); C.W. Holzapfel, R.D. Hutchison, and D.C. Wilkins, ibid., 26, 5239 (1970)

2) M. Somei, Y. Karasawa, and C. Kaneko, Chemistry Letters, 1980, 813: M. Somei, F. Yamada, Y. Karasawa, and C. Kaneko, ibid., 1981, 615.