AZIRIDINE IN ALKALOID SYNTHESIS : SYNTHESES OF γ-LYCORANE AND ERYTHRINA SKELETONS

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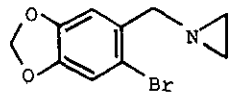
Aziridines and its quaternary salts are of interest for their high reactivity, arising from the release of the strain energy inherent in a small ring. It is well known that aziridines and aziridinium salts are easily attacked by nucleophiles and electrophiles to give more stable ring-opened or ring-expanded amines. Application of the above reaction leads us to the syntheses of γ-lycorane as follows.

Reaction of the aziridine (1) with 3-bromocyclohexenone (2) afforded the bromide (3), which on treatment with LDA was converted to the enaminone (4). γ-Lycorane (5) was easily synthesized from 4 by the known method. Moreover the bromide (7), obtained from 6 by treatment with 2, was thermally cyclized to give the enaminone (8), whose acid-catalyzed cyclization leads to the formation of the erythrina skeleton (9).



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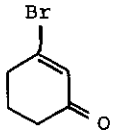

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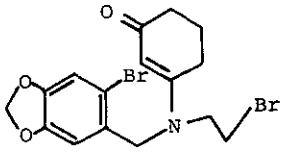

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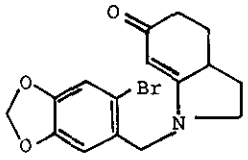

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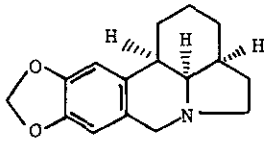

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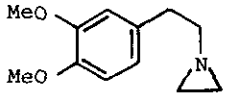

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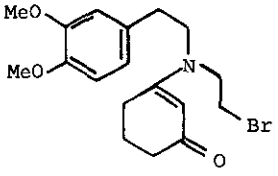

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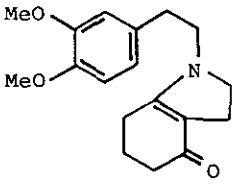

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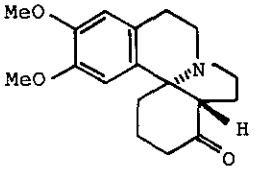

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