SYNTHETIC APPROACH TOWARD NAPHTHYRIDINOMYCIN

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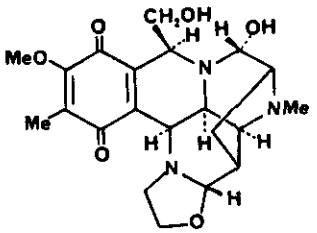
Naphthyridinomycin 1 was isolated from cultures of Streptomyces lusitanus. The antibiotic has been shown to be active against a large number of both gram-positive and gram-negative bacteria. It also exhibits strong antitumor activities. The structure of naphthyridinomycin was determined by an X-ray diffraction analysis. It is a hexacyclic compound with eight chiral centers, containing such labile functional groups as quinone, aminal, and oxazolidine. Our synthetic approach toward this formidable molecule involves the acyliminium ion-mediated cyclization of 2 to construct the tetracyclic ring system 3 ((1) HCOOH, $HgCl_2$; (2) NaOH, MeOH). The aldehyde 3 was converted to the aminophenol 4 in two steps ((1) $H_2NCO_2Bu^t$, CSA, quinoline, xylene; (2) H_2, Pd-C, EtOAc). Attempts to cyclize 4 to the desired pentacyclic system will be discussed.



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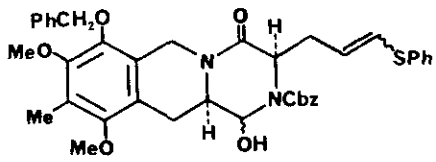

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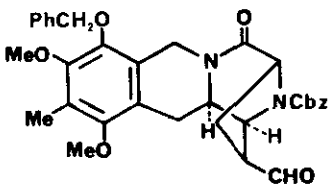

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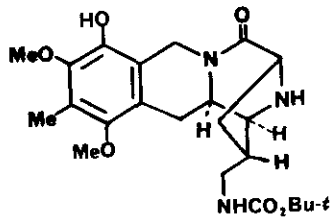

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