Total Synthesis of Indole Alkaloids

Significance: Indole alkaloids represent challenging synthetic targets due to their highly congested architecture and rich chemical functionality. Li and co-workers report the first enantioselective total synthesis of (−)-aspidodasycarpine and (−)-lonicerine. Furthermore, the synthetically obtained lanciferine did not match the previously reported spectroscopic data from the isolation literature.

Comment: Chiral amine C was obtained by a highly enantioselective transfer hydrogenation of imine A. The key C–C bond forming Conia-ene reaction of silyl enol ether D proceeded under gold catalysis to give tetracycle F. From precursor H, both (−)-aspidodasycarpine and (−)-lonicerine were obtained in four steps. The proposed structure of lanciferine was obtained from H in eight steps and was secured by X-ray crystallography.

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