

A facile synthesis of quinazolino[1,4]benzodiazepine natural alkaloids

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Abstract

A facile and short synthesis of a series of quinazolino[[3,2-*a*][1,4]benzodiazepine scaffold found in several biologically active naturally occurring alkaloids, including asperlicin C, circumdatin H and benzomalvin A is reported. Coupling of [1,4]benzodiazepine with 2-nitrobenzoyl chlorides, followed by a reductive *N*-heterocyclization afforded the quinazolino[[3,2-*a*][1,4]benzodiazepine ring system. Furthermore Lewis acid ($MgCl_2$, $ZnCl_2$) mediated cyclodehydration of a linear tripeptide comprised of three amino acid units provided the tricyclic quinazolino[3,2-*d*][1,4]benzodiazepine ring system found in few biologically active natural alkaloids. This methodology, implemented with a tripeptide encompassing the sequence of anthranilic-anthranilic-tryptophan methyl ester, furnish the first total synthesis of asperlicin D.

