A Novel NIS-Mediated Spirocyclization of Tryptamine Derived Isocyanides Towards Spiroindolines
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Abstract

Spiroindoline compounds are molecules that make up the core components for a wide range of both current and future generation medicinal compounds. Therefore, new methods for synthesizing spiroindoline structures are of great interest for frontline drug research. Previous scientific work has produced a diverse range of spiroindoline synthesis methods, falling into the classes of dearomatization, Fischer indolization and condensation reactions. In this research, a contribution has been made to this library of reactions by designing a novel N-iodosuccinimide mediated spirocyclization starting from N1-alkylated, tryptamine derived isocyanides. This thesis describes the optimization of this reaction, as well as its successful application in the synthesis of a small scope of new spiroindoline compounds containing an imidoyl iodide moiety that contains unique reactivity. It is expected that the new spiroindoline synthesis route can contribute to future generation drug synthesis by opening up new routes towards interesting natural products.