# TCCA-mediated oxidative rearrangement of tetrahydro-β-carbolines: Facile access to spirooxindoles and the total synthesis of (±)-coerulescine and (±)-horsfiline

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Abstract
Multi-reactive centered reagents are beneficial in chemical synthesis due to their advantage of minimal material utilization and formation of less by-products. Trichloroisocyanuric acid (TCCA), a reagent with three reactive centers, was employed in the synthesis of spirooxindoles through the oxidative rearrangement of various N-protected tetrahydro-β-carbolines. In this protocol, low equivalents of TCCA were required to access spirooxindoles (up to 99% yield) with a wide substrate scope. Furthermore, the applicability and robustness of this protocol were proven for the gram-scale total synthesis of natural alkaloids such as (±)-coerulescine (1) and (±)-horsfiline (2) in excellent yields.

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