
Katharine E. Lambson

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Abstract:

The indole core is one of the most prevalent groups seen in the diverse group of compounds classified as alkaloids.¹ There have been a wide variety of approaches to synthetically access the indolic core over the last 150 years, including such classics as the Fischer indole synthesis (1883) and the Larock indole synthesis (1991).²,³ More recently, the Söderberg lab has accessed indoles from o-nitrostyrene derivatives via an N-heteroannulation.⁴ Expanding on this work, a novel, base-catalyzed cyclization without the need of a metal catalyst to access N-alkoxyindoles has proven promising and will be discussed herein. In addition to its applications in methodology, indoles also have a plethora of applications in the field of total synthesis. The indolic core is commonly seen in many biologically interesting compounds, both naturally found and synthetically produced.⁵ One such group of compounds are the dilemmaones, three indole alkaloids isolated from Ectyonanchora flabellate, a marine sponge found off the coast of South Africa.⁶ Progress in the total synthesis of dilemmaone B will be discussed, wherein we propose the Söderberg palladium-catalyzed reductive N-heteroannulation as a key, late-stage step.

References: