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ANO-catalyzed multicomponent synthesis of 3-alkyl-*N*-substituted pyrroles

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ABSTRACT

The use of green chemistry principles is a powerful tool on the development of more sustainable protocols in organic synthesis along with making chemical processes cleaner. Within this context, multicomponent reactions (MCR) and the use of environmentally friendly catalysts stands out. MCR involves procedures in which three or more reactants are added to a single flask and react with each other to form a single product. MCRs are attractive from an environmental point of view, as they especially cover principles #2 and #8 of green chemistry, atom economy and reduction in the formation of derivatives.¹ Furthermore, ammonium niobium oxalate (ANO) is a stable, cheap, easy-to-handle and highly versatile catalyst to promote organic transformations,² even more if it can act in a heterogeneous way, being recovered and reused. Therefore, the union of MCR with ANO catalysis proved to be efficient to synthesize 3-alkyl-*N*-substituted pyrroles through an eco-friendly methodology, with excellent performance.

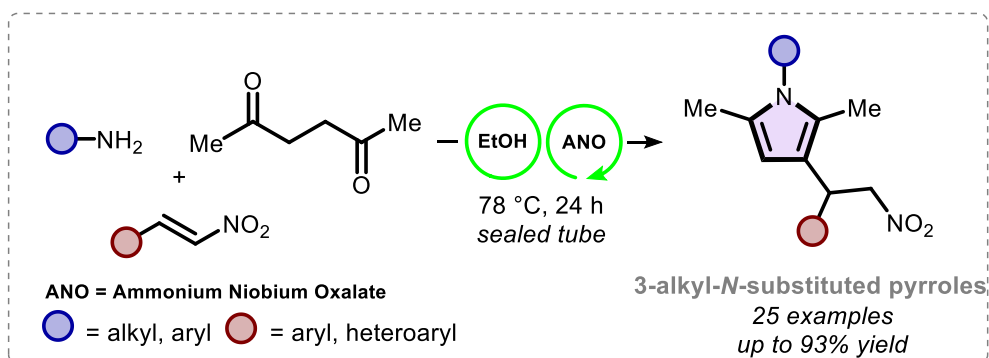


Figure 1. ANO-catalyzed multicomponent synthesis of 3-alkyl-*N*-substituted pyrroles.

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