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Title: *Cyclization Reactions of Enamines in Aqueous Solution*

Abstract:

Enamines are organic molecules with a nitrogen atom adjacent to a carbon-carbon double bond formed by a reaction between an aldehyde/ketone and a secondary amine. It has previously been found that when a secondary amine with a nucleophilic side chain is reacted with an aldehyde/ketone, instead of forming an enamine, a cyclization reaction occurs. These reactions are carried out in organic solvents such as benzene or toluene. The current study is an attempt to create a green synthesis of these species, by studying reactions of 2-piperidinemethanol with various aldehydes/ketones in water (**Figure 1**) and reactions of 2-piperidineethanol with various aldehydes/ketones in water (**Figure 2**).

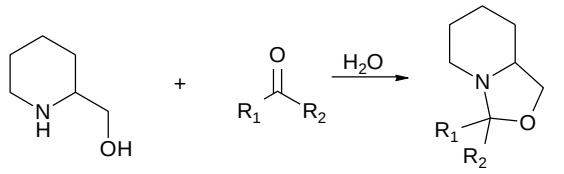

Figure 1

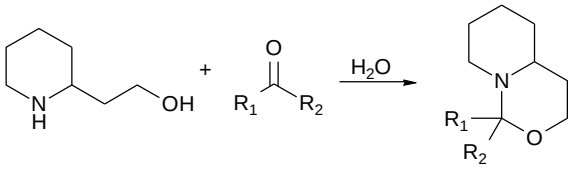

Figure 2

The products of these reactions are studied with gas chromatography-mass spectroscopy (GC-MS), nuclear magnetic resonance spectroscopy (NMR) and infrared spectroscopy (IR). Research is ongoing.