

## Synthesis of Novel 1,2,6-Trisubstituted Indoles Based on Cyclohexenone Scaffold

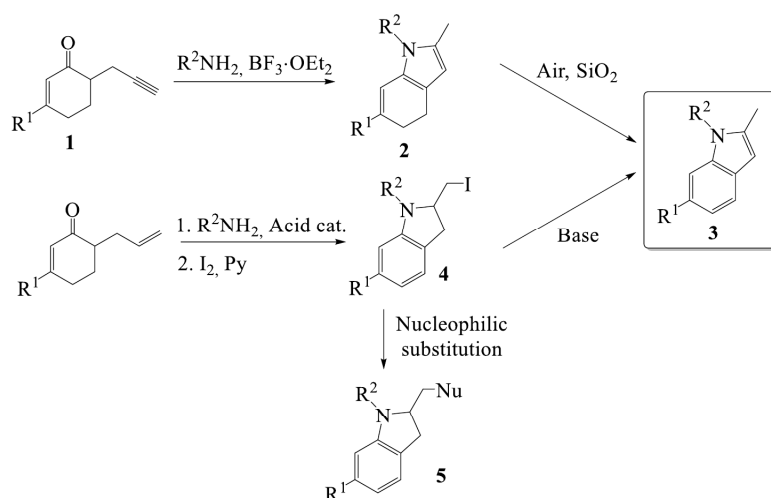
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New methods of construction of heterocyclic systems are always attracting the interest from organic and medicinal chemists because such substances have significant potential in drug discovery. In this field indoles synthesis occupies a prominent place because of the high biological activity of indoles derivatives. The transformation of  $\gamma,\delta$ -unsaturated ketones represents a good method for making pyrrole and indole core. In our work we focused on creating of indole core based on cyclohex-2-enone scaffold.

Two synthetic routes were proposed and the key reaction in both routes is the nucleophilic addition that leads to the formation of imines. The first route envisages the reaction of propargylated enones **1** with primary amines leading to the 4,5-dihydroindoles **2** which can be easily oxidized into indoles **3**. The second route proceeds through a iodine-mediated cyclization giving rise 2-iodomethyl derivatives **4**. Subsequent treatment of **4** with a strong base leads to the indole products **3**. The reaction of 2-iodomethyl derivatives **4** with a variety of nucleophiles leads to the formation of a series of substituted indoles **5**.



Both described routes showed good functional group tolerance. Either aromatic and aliphatic amines were tolerated. However, the amines with low nucleophilicity gave low yields under the same reaction conditions. Our results indicate that the nature of the substituents in the cyclohex-2-enone ring does not exert an important influence on the outcome of the reactions. Presented methodology provides access to differently functionalized 1,2,6-trisubstituted indoles in yields ranging from moderate to good.