Characterization of New 5-Aminoimidazole Derivatives

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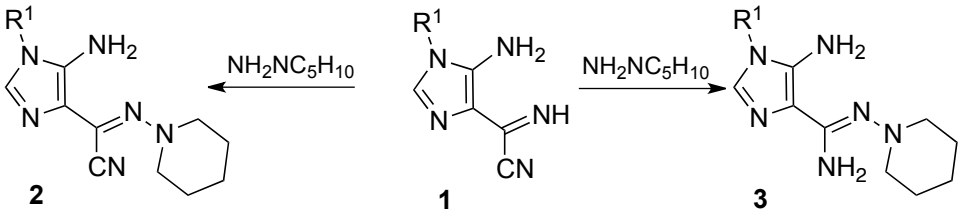
The imidazole nucleus is present in a significant number of biomolecules and the inclusion of this moiety in organic scaffolds is considered an important synthetic strategy in drug discovery. [1]

5-Aminoimidazoles are attractive building blocks in chemical synthesis because they are key components in many bioactive compounds. Few reports on the chemistry of these compounds appear in the literature due to their known instability.[2]

In our research group, imidazoles **1** are easily accessible from an efficient method previously developed. Studies on the reactivity of the 4-cyanoformimidoyl group with primary amines showed that competitive nucleophilic displacement of NH_3 or HCN occur leading to two alternative products.[3] The experimental conditions are determinant to achieve the selective synthesis of each product. As an extension of this work, condensation of imidazoles **1** and hydrazines have been studied. Here, we report the characterization of the products obtained from condensation of imidazoles **1** with 1-aminopiperidine.



Attempts to react imidazoles **1** with 1-aminopiperidine led us to isolate two different compounds. From the ^{1}H NMR data we confirmed that both products have in common the 5-aminoimidazole nucleus and the piperidine moiety. The presence of an extra amino group in the ^{1}H NMR spectrum of one of the products was a very good evidence for the formation of compound **3**. The presence of a cyano band in the IR spectrum of the second product supported the formation of product **2**. Finally, ^{13}C and 2D NMR spectra were determinant to the assignment of structure **2** and **3**. The ^{1}H, ^{13}C and 2D NMR and IR data will be presented and discussed.

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