A New Method for the Synthesis of Imidazopyridines

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Synthesis of imidazo[1,2-a]pyridines and their analogues has attracted significant attention in recent years as this class of compounds exhibits a broad range of useful pharmacological activity, including antibacterial [1], antifungal [2], antiviral [3], antiulcer [4], and anti-inflammatory behavior. They have also been characterized as selective cyclin-dependent kinase inhibitors, calcium channel blockers, β-amyloid formation inhibitors, and benzodiazepine receptor agonists, and they constitute a novel class of orally active nonpeptide bradykinin B2 receptor antagonists.

In this study, to achieve suitable conditions for the synthesis of imidazo[1,2-a]pyridines 4, we tested the reaction of pyridines 1, phenacyl bromide derivatives 2, and alkyl thiocyanate 3 as a simple model substrate in various solvents and under solvent-free classical heating conditions in the presence of potassium carbonate (Scheme 1).

In conclusion, we have demonstrated an efficient and simple method for the preparation of imidazo[1,2-a]pyridine derivatives using readily available starting materials. Prominent among the advantages of this new method are novelty, operational simplicity, and good yields. Further reactivity studies and synthetic applications of this methodology are in progress in our laboratory.

REFERENCES