Three Component Reaction for the Synthesis of Imidazo[2,1-b]thiazole Derivatives

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ABSTRACT

Three component one-pot reaction for synthesis novel of imidazo[2,1-b]thiazoles with high yield were obtained by the condensation of 4-phenylthiazol-2-amine, aromatic aldehyde and isocyanide.

Key words: Imidazo[2,1-b]thiazole, Three Component, 4-phenylthiazol-2-amine, Isocyanide.

INTRODUCTION

Sulfur containing heterocycles are an important class of compounds in drug chemistry so five membered heterocyclic structures imidazole nucleus have different properties such as high therapeutics properties of drugs as chemotherapeutic agents is related to the imidazole that have encouraged the medicinal chemists to synthesize a large number of them. Imidazole expanded as drug therapy in clinical medicine. Most of the work on the synthesis and biological activities of fused imidazo [2,1-b]-thiazoles have been reported. Thus, Polycyclic heterocyclic derivatives with thiazole are suitable for drug design1-5. Synthesis of these compounds is of interest to chemists because imidazo[2,1-b]thiazoles are very important structure in the field of drug chemistry with wide range of biological and pharmacological activity5. The imidazo[2,1-b]thiazoles scaffold are important class of fused heterocycles with a show promise such as anti-inflammatory4, antibacterial5, antifungal6, antihypertensive7, and anticancer8. There are important routes not only employed for the synthesis of the title compounds.

RESULTS AND DISCUSSION

As we said above, several methods have been proposed for imidazo[2,1-b]thiazoles over the years. Provide a essay method for synthesis imidazo[2,1-b]thiazole is very valuable. As part of our ongoing interest in developing new methods for the synthesis of various heterocyclic scaffolds9-15. Therefore in this study, we have synthesized derivatives of imidazo[2,1-b]thiazoles with the condensation of 4-phenylthiazol-2-amine, aromatic aldehyde and isocyanide in ethanol (Scheme 1).
Herein, we report synthesis of imidazo[2,1-b]thiazole derivatives, the reaction of 4-phenylthiazol-2-amine, aromatic aldehyde and isocyanide in ethanol in 60-66% yields and was completed within 3 hours (Table 1).

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