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Synthesis and characterisation of 2-Alkoxy-8-methyl-6-(pyrrolidin-1-yl)-4*H*-[1,2,4]triazolo[5,1-*f*]purine: A novel heterocyclic framework

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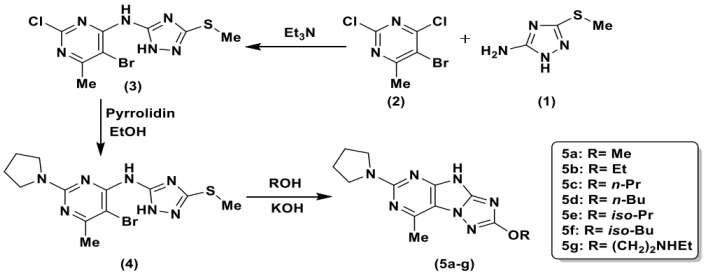
Purine, a natural spread heterocyclic core, plays an important role in life cycles of human, flora, and fauna. Purine-based compounds are currently used in the treatment of a wide range of diseases such as cancers, viral diseases, neuropsychiatric disorders, neurodegenerative diseases, inflammatory diseases, tuberculosis, or impotence [1] The interest in synthesis of purines springs from the biological and pharmaceutical importance of naturally occurring purines such as antibacterial [2], anti-inflammatory [3] activities, as well as efficacy in photodynamic therapy [4]. They also have agrochemical properties including herbicidal and soil fungicidal activity; thus, they have been used as pesticides and insecticides [5]. In the present work, initially the reaction of 5-amino-3-(methylthio)-1*H*-1,2,4-triazole (1) with 5-bromo-2,4-dichloro-6-methylpyrimidine (2) in refluxing Et_3N gave 5-bromo-2-chloro-6-methyl-*N*-(3-(methylthio)-1*H*-1,2,4-triazol-5-yl)pyrimidin-4-amine (3) which were subsequently underwent S_NAr reaction with pyrrolidine in boiling EtOH to yield quantitatively the corresponding pyrrolidine-substituted compound (4). Further reaction of the latter compound with different alcohols in the presence of KOH under reflux condition was resulted in the synthesis of various derivatives (5a-g) having novel [1,2,4]triazolo[5,1-*f*]purine heterocyclic core via cyclocondensation.



Keywords: Purine, Purine-based compounds, [1,2,4]Triazolo[5,1-f]purine, Heterocyclic core

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