ABSTRACT

Heterocyclic compounds represent a versatile and abundant class of organic molecules. They not only underpin the chemical basis of life and sustain essential metabolic processes but have also played a transformative role in modern medicine and clinical therapeutics through their potential in disease treatment. 1,2,4-triazoles are of particular significance, owing to the presence of three nitrogen atoms within their heteroatom framework, which confer enhanced biological activity. In this study, **base-catalyzed cyclization** is reported a highly effective strategy towards the development of innovative triazole derivatives. **4-Methoxybenzoic acid (1)** in addition to ethanol under reflux produced **4-methoxybenzoate (2)**. Hydrazine monohydrate then reacted with 4-methoxybenzoate in the presence of ethanol generated **4-methoxybenzohydrazide (3)**. 4-Methoxybenzohydrazide was then allowed to react with ***p*-tolyl isothiocyanate (4)** and as a result parent compound **5-(4-methoxyphenyl)-4-(*p*-tolyl)-4*H*-1,2,4-triazole-3-thiol (5)** was produced. The parent compound was then reacted with electrophiles **4-(chloromethyl)-*N*-(4-ethylphenyl) benzamide (6a)** and **4-(chloromethyl)-*N*-(2,6-dimethylphenyl) benzamide (6b).** As a result, the novel derivatives ***N*-(4-ethylphenyl)-4-(((5-(4-methoxyphenyl)-4-(*p*-tolyl)-4*H*-1,2,4-triazole-3-thio)methyl)benzamide (7a)** and ***N*-(2,6-dimethylphenyl)-4-(((5-(4-methoxyphenyl)-4-(*p*-tolyl)-4*H*-1,2,4-triazole-3-thio)methyl)benzamide (7b)** were synthesized. The structural elucidation of the synthesized derivatives was done via ^{1}H-NMR and ^{13}C-NMR spectral analysis.