

## ABSTRACT

In this study, successful synthesis of a novel triazole derivative, 3-(2-Chloro-benzylthio)-5-(4-methoxyphenyl)-4-(4-phenyl)-5H-1,2,4-triazole, by employing a reaction involving hydrazide, phenyl-isothiocyanate, and 2-Chloro-benzylchloride is accomplished. In this synthesis process, reaction initiated with Draconic acid as the starting reactant, which subsequently underwent a reaction with ethanol to yield an intermediate product. This intermediate benzoate compound was then subjected to a reaction with hydrazine. The resulting product from this step participated in a reaction with phenyl-isothiocyanate, and through a cyclization process, led to the formation of 5-(4-methoxyphenyl)-4-(phenyl)-1,2,4-triazole-3-thiol. Finally, the last phase of synthesis, involved the reaction of this triazole-thiol compound with 2-chloro-benzylchloride in the presence of DMF (Dimethylformamide) as a solvent and LiH (Lithium Hydride) as a base catalyst. This multistep synthesis has resulted in the creation of a novel compound with potential applications in various fields of chemistry and science. This chemical synthesis represents a significant step forward in the development of novel compounds, potentially offering unique properties and applications in various fields of chemistry and related disciplines. The synthesis process and the resulting compound's structural characterization open doors to further exploration and potential applications in medicinal chemistry, materials science, and beyond. To confirm the identity and elucidate the structure of the synthesized compound, we conducted a comprehensive investigation employing various spectroscopic techniques, such as  $^1\text{H-NMR}$  spectroscopy and  $^{13}\text{C-NMR}$  spectroscopy.