

## Abstract

Some alkylated derivatives of 5-(4-methoxyphenyl)4-Phenyl -4*H*-1,2,4-triazole-3-thiol, possessing various pharmacological as well as biological activities have been synthesized in the present dissertation. In first step, a quantitative amount of 4-methoxybenzohydrazide (1), a basic molecule in the multistep synthesis of 1,2,4-triazole, was reacted with phenyl isothiocyanate (2) in methanolic media for 15 minutes to give precipitates which were filtered, washed and dried in air to achieve 2-(4-methoxybenzoyl)-*N*-Phenylhydrazinecarbothioamide (3). This intermediate (3) was further cyclized in alkaline medium by means of reflux, and acidified with HCl to obtain 5-(4-methoxyphenyl)4-Phenyl -4*H*-1,2,4-triazole-3-thiol (4) which was washed with excess of distilled water and recrystallized from absolute alcohol. Finally, the derivatives (6b & 6g) of 1,2,4-triazole were formed by reacting compound (4) with respective alkyl halide in the presence of lithium hydride using dimethyl formamide (DMF) as a solvent. After reaction completion, the precipitates of desired product were yielded by quenching reaction mixture in ice cold water or sometime by performing solvent extraction.

All the synthesized compounds were evaluated and characterized by different spectral techniques such as H-NMR, IR and EIMS. The confirmation of the functional groups present in different compounds was done by IR while the molecular formulas and molecular mass were determined by EIMS. <sup>1</sup>HNMR spectra was used to verify the structural formula by integrating the number of protons.