ABSTRACT

The heterocyclic compounds are the important class of compounds because of having highest therapeutic applications. With minor modification in the polycyclic and poly functional compounds having heteroatoms have an ability to act strong biological functionalities. Observing the literature full of applications of heterocyclic compounds we were aimed to synthesize an array of hybrids of 5-{1-[(4-bromophenyl) sulfonyl)-3-piperidinyl}-1,3,4-oxadiazole-2-thiol. The aimed compounds are versatile in the sense that the two heterocyclic moieties, aromatic and aliphatic moieties were submerged in single unit in order to synthesize compounds possessing outstanding biological potential. The synthesis of the target compounds followed four consecutive steps. The first step based on the synthesis of sulfonamides while the sulfonamides were converted into the carbohydrazide. Carbohydrazide were reacted with carbon disulfide and base to yield parent product 1,3,4-oxadiazole. An array of electrophile was combined with oxadiazole to synthesize the different derivatives of oxadiazole **5a-d.** All the synthesized compounds were characterized by different spectroscopic techniques like H-NMR, C-NMR and IR. All the synthesized compounds were finally screened against antibacterial and antifungal potential. All the compounds found active against both activities with variable range. Compound 5c and 5d were found best antibacterial agent while compound 5b found best antifungal agent among the synthesized compound and could be evaluated for their further screening in future.