ABSTRACT

The compounds having azole group in their structure are of excellent importance from biological applications. The oxygen and nitrogen based heterocyclic systems are very active because the presence of these atom, made the system very active and able to interact with concerned substrate. On the basis of our previous observations, expertise and synthetic knowledge it is noted that the oxadiazole based hybrids showing highest biological potential. Taking the objectives in mind we designed a series of hybrids of 5-{1-[(4-bromophenyl)sulfonyl)-3- piperidinyl}-1,3,4-oxadiazole-2-thiol. 1,3,4-Oxadiazole was synthesized by following the the synthesis of two intermediate compounds namely ester and hydrazide by using isonipacotate and hydrazine hydrate. The targeted analogs were availed by room temperature reaction of 1,3,4-oxadiazole and variety of alkyl halides. All the designed products were purified by using different analytical techniques like thin layer chromatography, separation techniques and crystallization. Structures of the synthesized compound **5a-e** were justified by the highly sensitive spectral data of ^{1}H-NMR, ^{13}C-NMR and IR. Biological screening was the next main objective of the current work. All the designed compounds were biologically screened against antibacterial and antifungal potential. Results revealed that all the compounds were found active with variable potential against both activities. Compound **5a** was found highly active against antibacterial and antifungal activities among the synthesized functionalities and could be considered for further studies.