ABSTRACT

The wide range of heterocycles in bioactive natural products, pharmaceutical and agrochemicals has made them useful synthetic targets. In current research work, 1-(4-(bromomethylbenzenesulfonyl)2-methylpiperidine (**5**) was synthesized by the reaction of 2-methylpiperidine (**a**) with 4-bromomethylbenzenesulfonyl chloride (**b**) in the presence of aqueous Na_2CO_3 at pH 9. A series of 5-aryl/aralkyl-1,3,4-oxadiazol-2-thiols (**4a-n**) were prepared starting from corresponding carboxylic acids. New target molecules (**6a-n**) were synthesized by stirring **4a-n** with **5** in the presence of DMF as medium and LiH as activator for 5-6 hours. Elucidation of respective structures of these newly synthesized compounds was done by IR, ^{1}H-NMR and EI-MS spectral data. All these synthesized derivatives were evaluated for their antibacterial action against gram positive and gram negative strains using ciprofloxacin as standard. These target compounds exhibited moderate to high antimicrobial within MIC value range of 8.83±0.57 to 17.86±0.20 mg/ml. Screening of synthesized derivatives against enzymes AChE, BChE, antiurease and α-glucosidase having IC_{50} (μM) 0.04±0.0001, 0.85±0.0001, 21.25±0.15, 38.25±0.12 respectively infers that compounds **6c** and **6g** with IC_{50} 8.51±0.004 μM with IC_{50} 9.72±0.01 μM against BChE and AChE exhibited strong inhibitory potential amongst all. Most of them showed promising inhibition against these enzymes. Against α-glucosidase **6a, 6g** and **6l** showed moderate inhibition while remaining derivatives were inactive.