ABSTRACT

Sulfonamides are important class of compounds that shows broad spectrum of antimicrobial activities. In the present study, various *N*-alkyl substituted derivatives of benzene-sulfonamide were synthesized. In the first step, benzene sulfonyl chloride was treated with 2-amino-2-methyl-1-propanol afforded *N*-(2-hydroxy-1,1-dimethylethyl)-benzenesulfonamide and in next step this parent compound was reacted with alphatic halides to produced different *N*-alkylation substituted derivatives.

Oxadiazole are very important compounds that are strongly biologically active. In this study the parent compound 5-benzyl-1,3,4 oxadiazole-2-thiole was synthesized by hydrazinolysis of ethyl phenylacetate followed by reaction with carbon disulfide. Further the parent compound oxadiazole was treated with different aliphatic alkyl groups to produce eight different *S*-substituted derivatives of oxadiazole.

All these synthesized derivatives of sulfonamides and oxadiazoles were characterized by melting point, IR, EI-MS, ^{1}H-NMR and X-ray crystallographic techniques. These compounds were screened against acetyl cholinesterase (AChE), butyryl cholinesterase (BChE) and lipoxygenase enzymes (LOX) .to evaluate their biological activity and only sulfonamides showed inhibition potentials against butyryl cholinesterase. All the oxadiazole derivatives remained inactive against these enzymes.