ABSTRACT

Thousands of sulfonamides along with their derivatives and counterparts have been prepared. The sole purpose behind the conduct is to discover new drugs with their possible pharmacological characteristics. In the study under consideration, various *N*-alkyl substituted derivatives of *N*-(5-chloro-2-methoxyphenyl)benzenesulfonamide were prepared and subjected to evaluation for their biological potentials employing the available techniques. The synthetic pathway consisted of two steps: the parent sulfonamide was synthesized by reacting benzene sulfonyl chloride with 4-chloro-2-mothoxyaniline and then *N*-alkylation was carried out in the presence of strong base (NaH) and *N,N*-dimethyl formamide (DMF). The synthesized compounds *viz* *N*-(5-chloro-2-methoxyphenyl) benzenesulfonamide, *N*-methyl-(5-chloro-2-methoxyphenyl) benzenesulfonamide, *N*-ethyl (5-chloro-2-methoxyphenyl)benzenesulfonamide, *N*-allyl-(5-chloro-2-methoxyphenyl) benzene sulfonamide, *N*-pentyl-(5-chloro-2-methoxyphenyl) benzenesulfonamide, *N*-butyl-(5-chloro-2-methoxyphenyl)benzenesulfonamide and *N*-(2-bromoethyl)-(5-chloro-2-methoxyphenyl)benzenesulfonamide were characterized by ^{1}H-NMR, IR and X-ray crystallographic techniques. These synthesized compounds were screened against acetyl cholinesterase (AChE), butyryl cholinesterase (BChE) and lipoxygenase (LOX) and were found to be active against acetyl cholinesterase (AChE) while in the case of butyryl cholinesterase and lipoxygenase only few of them showed inhibitory activity.