ABSTRACT

The synthesis of 2-(2,4-dichloro-6-{[4-(2-furoyl)-1-piperazine]sulfonyl}phenoxy)-*N*-(aryl)acetamides was carried out under the controlled conditions as mentioned in the scheme. In the first step, the nucleophile is formed by reacting the calculated amount of *N*-(2-furoyl)piperazine **(1)** with 3,5-dichloro-2-hydroxybenzenesulfonyl chloride **(2)** in the presence of an aqueous solution of sodium carbonate and stirred for three hours at room temperature to produce {4-[(3,5-dichloro-2-hydroxyphenyl)sulfonyl]-1-piperazinyl}(2-furoyl)methanone **(3)**. In the parallel set of reaction electrophile prepared by reacting substituted aniline with acetyl bromide in the vicinity of aqueous sodium carbonate solution. Vigorous shaking formed the precipitates of the electrophile. In the final step, nucleophile and electrophile reacted with each other in acetonitrile/K_2CO_3 medium, that produced various 2-(2,4-dichloro-6-{[4-(2-furoyl)-1-piperazine]sulfonyl}phenoxy)-*N*-(aryl)acetamides **(7a-c)** as outlined in scheme-1. Their structures are confirmed by the spectral analysis techniques such as EI-MS, Infrared (IR), proton, and ^{13}C NMR. The synthesized compounds' enzyme inhibition potential was carried out against *a*-glucosidase, AChE, and BChE enzymes. As illustrated from the results of $IC_{50,}$ these compounds are observed as the active inhibitory potential for these enzymes. The cytotoxic activity by hemolytic assay revealed that these compounds have mild exposure of cytotoxicity on RBCs.