

ABSTRACT

In undertaking proposal, a new series of *N*-(2,3-dihydro-1,4-benzodioxan-6-yl)-4-chlorobenzenesulfonamide derivatives have been synthesized by the coupling of 1,4-benzodioxan-6-amine (**1**) with 4-chlorobenzenesulfonyl chloride (**2**) to synthesize *N*-(2,3-dihydro-1,4-benzodioxan-6-yl)-4-chlorobenzenesulfonamide (**3**) with good yield which further reacted with different electrophiles (**4a-h**) to yield the desired compounds (**5a-h**). All synthesized compounds were structurally characterized by IR and ¹HNMR spectral techniques. The inhibitory potential of these sulfonamide derivatives are also tested against cholinesterases and α -glucosidase enzymes. Their IC₅₀ values showed that they are moderate to weak inhibitors of these enzymes with respect to their standards Eserine and Acarbose respectively. These derivatives are weak inhibitors of butyrylcholinesterases. Compound (**5e**) and (**5c**) were found to be moderate inhibitors of acetylcholinesterase with IC₅₀ values 26.25 and 58.13 μ M respectively, whereas, compound (**5h**) showed moderate inhibition against α -glucosidase enzyme as displayed from their IC₅₀ values 153.52 μ M respectively, corresponding to their respective standards.