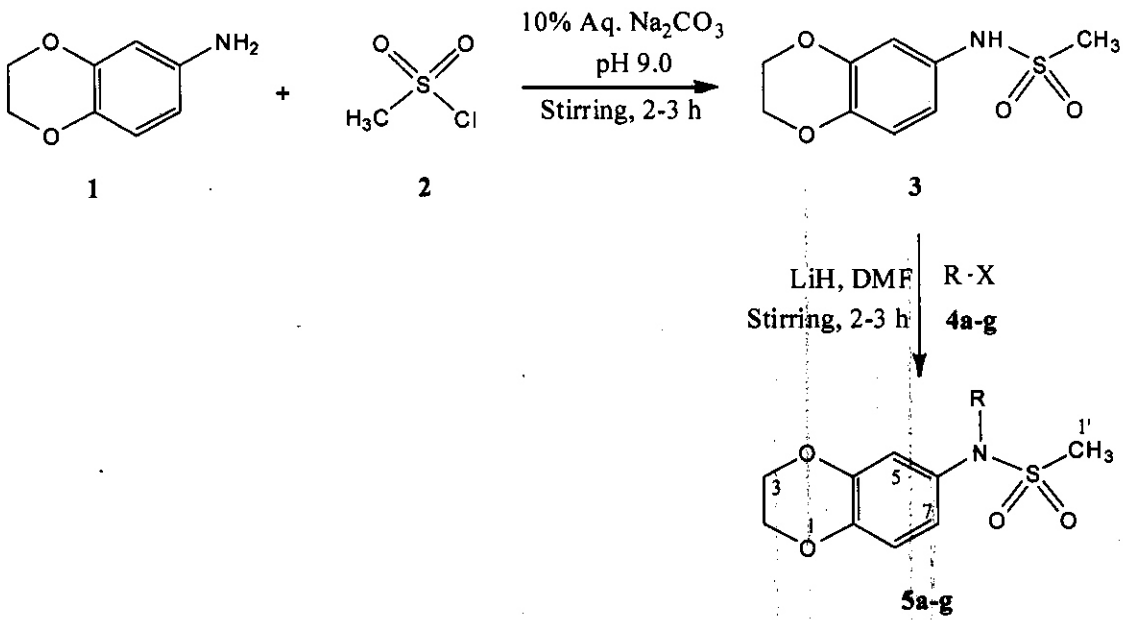
ABSTRACT

The aim of this work was to synthesize sulfonamides bearing 1,4-benzodioxane-6-amine moiety having anti-enzymatic potential. The synthetic methodology includes the reaction of 1,4-benzodioxane-6-amine (**1**) with methanesulfonyl chloride (**2**) in aqueous alkaline medium on stirring for 2-3 hours under pH 9 to form *N*-(2,3-dihydrobenzo[1,4]dioxin-6-yl)methanesulfonamide (**3**). The synthesized sulfonamide, **3**, was further stirred for 2-3 hours with a series of aralkyl/alkyl (**4a-g**) halides to yield *N*-aralkyl/alkyl-*N*-(2,3-dihydrobenzo[1,4]dioxin-6-yl)methanesulfonamide (**5a-g**) in DMF with LiH as activator. The structural analysis of the derivatives was performed by FT-IR, ^{1}H-NMR, ^{13}C-NMR and EI-MS. All the compounds were subjected to enzyme inhibition evaluation against urease, alpha glucosidase, chymotrypsin, trypsin, AChE and BChE enzymes and different bacteria. 5a, 5d, 5e, 5f and 5g showed higher BChE % inhibition than stander eserine where as 5e, 5f and 5g showed higher AChE % inhibition but less than stander eserine. 5a showed higher antibacterial potential.



Scheme 1: Outline for the synthesis of *N*-aralkyl/alkyl-*N*-(2,3-dihydrobenzo[1,4]dioxin-6-yl)methanesulfonamides (**5a-g**)

Table 3.1 Different aralkyl halides **4(a-g)** utilized in the synthesis of *N*-aralkyl-*N*-(2, 3-dihydro-1,4-benzodioxin-6-yl)methanesulfonamides **5(a-g).**

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