Abstract

Under properly controlled conditions, the desired molecules were produced. In the first step ethyl 1-[(4-methoxyphenyl)sufonyl]piperidin-4-carboxylate (**1**) was prepared by the reaction of the equimolar ratio of 4-methoxybenzenesulfonyl chloride with ethyl piperidin-4-carboxylate. The reactants were taken in a round bottom flask and refluxed for about 3 hours until the reaction completed maximum which was then supervised through TLC and pH maintained by aqueous Na_2CO_3 using distilled water. The reaction mixture was neutralized by dilute HCl. The precipitate of ester was obtained and filtered out. The formed ester was then converted into 1-[(4-methoxyphenyl)sulfonyl]piperidin-4-carbohydrazide (**2**), by the reaction with hydrazine hydrate in the presence of methanol solvent. The reaction was refluxed for 2 hours at room temperature. Methanol was evaporated after the completion of the reaction. The precipitates of hydrazide were collected and dried. Hydrazide was taken in a flask with ethanol and potassium hydroxide. Carbon disulfide was introduced. That reaction was refluxed for 4 hours and the product 5-{1-[(4-methoxyphenyl)sulfonyl]piperidin-4-yl}-1,3,4-oxadiazole-2-thiol (**3**) was synthesized. pH was adjusted by adding HCl. The cyclized precipitates were collected. The oxadiazole was coupled with different substituted electrophiles in the presence of LiH and DMF and the derivative 2-[(2,4-diiodobenzyl)thio]-5-{1-[(4-methoxyphenyl)sulfonyl]piperidin-4-y}-1,3,4-oxadiazole (**5g**) was synthesized. The bioactivity of the derivative was determined against bacteria and fungi. Synthesized derivatives show considerable inhibition against α-glucosidase enzymes. The derivative was characterized by using ^{1}H-NMR and ^{13}C-NMR.