ABSTRACT

A hybrids of 1,3,4-oxadiazole having biological and pharmaceutical applications, were synthesized in several steps. In first phase benzene sulfonyl chloride **a** was treated with ethyle-piperidine-3-carboxylate **b** to produce ethyl 1-(phenylsulfonyl)piperidine-3-carboxylate **1**. In the second phase compound **1** was refluxed with hydrazine hydrated in the methanol used as a solvent, and formulated 1(phenylsulfonyl)piperidine-3-carbohydrazide **2**. In the third step the newly synthesized compound **2** was on reflux in the presence of carbon disulphide CS_2 and potassium hydroxide KOH as a base and produced desire product 5-(1-(phenylsulfonyl)piperidine-3-yl)-1,3,4-Oxadiazole-2-thiol **3**. Finally, different hybrids of 5-(1-(phenylsulfonyl)piperidine-3-yl)-1,3,4-Oxadiazole-2-thiol **3i-3iv** were synthesized by treating it with various alkyl halide and lithium hydride in the presence of dimethyl formamide as a solvent. Further all the formulated compounds were corroborated and characterized by various spectral techniques: ^{1}HNMR, ^{13}CNMR, IR and EIMS. The specific functional groups of the compounds were identified by IR and EIMS determined molecular formula and molecular weight of newly formed compounds. Spectral techniques ^{1}H-NMR, and ^{13}C-NMR integrated protons & carbon atoms at different chemical shift and justified the structure of all the compounds. Anti-urease inhibition and α-glucosidase inhibitory activity of formulated compounds were performed which demonstrated that compounds 3i & 3ii showed maximum α-glucosidase and anti-urease inhibitory activity as compared to standard respectively, due to the presence of ethyl and propyl groups as a substituents.