Abstract

α-Glucosidase Inhibitors help in lowering the level of glucose in the bloodstream. They are used to treat diabetes mellitus type 2 by slowing the metabolism of carbohydrates. This research highlights the synthesis of two new oxadiazole-ethanamide hybrid derivatives, **8a & 8b**, as antidiabetic agents. The formation of compounds **8a** & **8b** was carried out in various steps. First, indole-3-butyric acid **(1)** is reacted with ethanol in the presence of a catalyst, H_2SO_4, then indole-3-butrate **(2)** is formed by refluxing it for 8 hours. In the second step, the previously synthesized compound **(2)** reacted with hydrazine monohydrate in the presence of solvent, MeOH, and then Indole-3-butanohydrazide **(3)** was formed by refluxing it for 14 hours. In the third step, **(3)** reacted with ethanol, carbon disulfide, and potassium hydroxide, then compound **(4)** was synthesized by refluxing it for 16 hours. For the synthesis of electrophiles **7a** & **7b,** 5-chloro-2-methoxy phenyl amine **(5a)** and phenethyl amine **(5b)** reacted with bromoethanoyl bromide **(6)** in the presence of 10% Na_2CO_3 solution with vigorous shaking for 20-30 minutes. Then, for the synthesis of targeted compounds **8a** & **8b**, the electrophiles **7a & 7b** reacted separately with nucleophile **(4)** by using DMF and LiH. The structural confirmation of compounds **8a** and **8b** was carried out by ^{1}H-NMR and ^{13}C-NMR. Synthesized compounds **8a** and **8b** show strong inhibition against α-Glucosidase compared to the control Acarbose. Our result suggests that drugs **8a** and **8b** may act as potential therapeutic agents for α-Glucosidase inhibition.