

Synthesis, Characterization and Antibacterial Studies of New Carboxamide Derivatives of Dapsone

Abstract:

The project aims at the synthesis of Carboxamide derivatives of Dapsone. Three derivatives of benzoic acid, 4-hydroxybenzoic acid and 4-chlorobenzoic acid are used to prepare carboxamides of dapsone (I, II and III respectively). All the product is characterized by spectrophotometer. Fourier transmission Infra red (FTIR) shows the distinguish bands of carboxamide, amine, carboxyl and hydroxyl group. The UV-Spectra shows two types of transition $\pi \rightarrow \pi^*$ and $n \rightarrow \pi^*$. Proton Nuclear magnetic resonance spectra ($^1\text{H-NMR}$) of carboxamide derivatives shows signals of aromatic protons and broad singlet to the amide proton. Mass spectra of amides have same base peaks due to the loss of $\text{C}_6\text{H}_6\text{SNO}$ from second fragmentation. Diffusion agar method is used in biological activities. Three types of bacteria (*Staphylococcus aureus*, *Escherichia coli* and *Pseudomonas aeruginosa*) are used in this studies, the carboxamide III has high biological activity than others. By using Density functional theory (DFT) studies explain the stability the carboxamide compounds.

Keywords: Dapsone, carboxamide, characterization, carbonyl.