Abstract:

The specific study focuses on design, synthesis and spectral analysis of 3,5-Dichloro-2-hydroxy-*N*-(4-methoxybenzoyl)benzenesulfonohydrazide which has lot of medicinal importance. The experiment was started with the reaction of 4-Methoxybenzoic acid **(1)** with ethanol **(2)** in the presence of conc. H_2SO_4 to prepare ethyl 4-Methoxybenzoate **(3),** which is used as a starting material for this study. Then ethyl 4-Ethoxybenzoate **(3)** was allowed to react with hydrazine hydrate **(4)** in the presence of ethanol to produce 4-Methoxybenzohydrazide **(5).** The obtained compound was treated with 3,5-Dichloro-2- hydroxybenzenesulfonyl chloride**(6)** to produce 3,5-Dichloro-2-hydroxy-*N'*-(4-methoxybenzoyl)benzenesulfonohydrazide**(7).** The product was characterized by IR, ^{1}H-NMR, ^{13}C-NMR. The compound exhibits significant potential as an antimicrobial agent due to its sulfonohydrazide functional group.