SYNTHESIS, CHARACTERIZATION AND ANTIBACTERIAL ACTIVITIES OF HYDRAZONE SCHIFF BASE COMPOUNDS AND ITS DERIVATIVES

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Abstract

Biological activities (e.g. antibacterial) of hydrazone compound have received much attention from the synthetic chemists since last two decades. Herein, we would like to report the synthesis pathways as well as the spectroscopic characterization of three etherified hydrazone Schiff base compound, which were initiated from 2-hydroxyacetophenone. Hydrazone Schiff base compound was obtained through condensation reaction between 2-hydroxyacetophenone and benzhydrazide. Meanwhile the etherified derivatives of hydrazone Schiff base were prepared via Williamson ether synthesis under reflux condition. All the synthesized compounds were characterized using Fourier transformation infrared, UV-Vis and ¹H nuclear magnetic resonance spectroscopy. In addition, the antibacterial activities of these compounds were also conducted using disc diffusion method against Bacillus cereus and Escherichia coli. The results are discussed in this present paper.

Keywords: hydrazone Schiff base, etherified derivatives, antibacterial

Introduction

Hydrazones generally are prepared by reacting a stoichiometric amount of hydrazide (R-NH-NH₂) and a carbonyl (C=O) compound in suitable solvent under reflux condition [1]. Hydrazone Schiff base compounds and complexes have attracted considerable amount of attention since last two decades due to their pharmaceutical activities such as antiproliferative effect, antimicrobial, antibacterial, antifungal, anti-inflammatory [2], anticonvulsant, antitubercular, antiviral, antioxidative effects and inhibition of tumor growth [3]. These biological activities enable the hydrazone...