



RESEARCH ARTICLE

Synthesis, Characterization and Biological Study of Some Chalcones derived from Terphthaldehyde

Suha K. Al-Mosawi¹, Hanan A. Al-Hazam², Abbas F. Abbas²

¹Department of Pharmaceutical Chemistry, College of Pharmacy, University of Basrah, Basrah-Iraq

²Department of Chemistry, College of Science, University of Basrah, Basrah-Iraq

*Corresponding Author E-mail: almosowi.suha80@gmail.com

ABSTRACT:

Ten new Schiff bases of Terphthaldehyde with 4- amino acetophenone have been synthesized and characterized by spectroscopic IR, ¹HNMR and ¹³CNMR techniques. The biological screening data of the synthesized compounds were also studied.

KEYWORDS: Schiff base, Chalcone, Antibacterial.

INTRODUCTION:

Schiff base compounds have been shown to be promising leads for the design of efficient antimicrobial agents as a result of the broad range of biological activities exhibited by these compounds. These compounds are reported to exhibit antifungal, antibacterial, antimalarial, antiproliferative, anti-inflammatory, antiviral and antipyretic properties [1-3]. The mode of interaction and inhibition effectiveness of Schiff bases with bacteria and fungi is expected to depend on the molecular structure of the compounds. Thus, advances in this field will require analyses of structure activity relationships of Schiff bases along with investigation of the mechanism of action of these compounds [4]. In particular, Schiff bases composed of terphthaldehyde are very promising in the search of new functional materials. They exhibit a variety of biological activities [5-7] as well as show important photochromism where light absorption causes interconversion between enolimine and keto-amine tautomers through intramolecular hydrogen transfer.

As part of our efforts to study structure activity relationship of Schiff bases, we report the effect of substituent position on the electronic spectra and antimicrobial activity of Schiff bases of isomeric 4-amino acetophenone with terphthaldehyde.

EXPERIMENTAL:

1. MATERIAL AND METHODS:

All chemicals were obtained commercially from Sigma Aldrich Chemicals. The solvents: ethanol, N,N'-dimethylformamide (DMF) and acetonitrile were of spectroscopic grade and used without further purification. Infrared spectra were recorded as KBr pellets on a Shimadzu FT-IR 8400 affinity Spectrophotometer. ¹H NMR Spectra were obtained using a Varian 500 MHz spectrometer (DMSO-d₆) solution with tetramethylsilane (TMS) as internal standard. Microanalytically data were determined using a CE-440 Elemental analyzer, EAI Exeter Analytical Inc. Melting points were determined with Gallenkamp melting point apparatus.

2. Synthesis of a Schiff Base (T):

Ethanollic mixture of terphthaldehyde (0.134 gm, 0.001mole) with 4-amino acetophenone (0.135gm, 0.002mole) were refluxed at 65°C in presence of ethanol 20 ml with addition three drops of glacial acetic acid. The reaction was monitored by thin layer chromatography (TLC) by using eluent acetone: chloroform (2:8) respectively. The solvent was evaporated and yellow

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