



Synthesis and Characterization of New Schiff-Base Derived from (2Z)-1-(2,4-Dimethylphenyl)-3-(4-Hydroxy-3-Methoxyphenyl)Prop-2-En-1-One

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ABSTRACT

In this research study, resacetophenone react with vanilline in presence of sodiumhydroxide to make chalcone, which clubbed with amino thiazole in presence of glacial acetic acid to formulate Schiff bases. Title compound have been conclude by various spectroscopic technique like FT-IR, ¹H NMR and Mass Spectra.

Keywords: Synthesis; Characterization; Schiff base; Derived

INTRODUCTION

Chalcone and Schiff base are the too important heterocyclic chemistry moieties present in nature or prepare in research lab. Chalcone and Schiff base have a wide range of therapeutic and biological activities. Literature review shown that chalcone and Schiff base has various therapeutic activity like anti-inflammatory, anti-malarial, antimicrobial, anti-depressant, anti-histamine, anti-tubercular and anti-cancer [1-11]. Synthesized compound characterized by Elemental analysis, IR, ¹H NMR and Mass spectroscopy. Chalcone derivative gives good spectral and therapeutic activity.

MATERIALS AND METHODS

M.P. is checked with simple melting point apparatus in our research lab. ¹H NMR spectra took on Bruker 300 MHz spectrophotometer at SAIF, Punjab. FT-IR spectra record on Shimadzu FT-IR Spectrophotometer at Science College, Patan and Mass spectra recorden with Waters Micromass. All the chemicals from S.D. fine, Mearck and A.R. and L.R. grade.

Preparation of (2Z)-1-(2,4-dimethylphenyl)-3-(4-hydroxy-3-methoxyphenyl)prop-2-en-1-one

0.005 molresacetophenone and 0.005 molvanilline were mixed in 15 ml ethyl alcohol, with continuous stirring and add NaOH (1.1 gm, 10 ml) drop wise. The reaction mass stirred at room temperature and put for 12 hours. The reaction mass put in cruised ice beaker, immediately precipitate found, filtered and crystallized (Figure 1).

Preparation of 4-[(1E, 2E)-3-(4-hydroxy-3-methoxyphenyl)-N-1,3-thiazol-2-ylprop-2-enimidoyl]benzene-1,3-diol

0.005 mol mixture of (2Z)-1-(2,4-dimethylphenyl)-3-(4-hydroxy-3-methoxyphenyl)prop-2-en-1-one and 0.005 molaminothiazole was put in 30 ml ethyl alcohol, add 2-3 drop of glacial acetic acid for rapid reaction. Then the reaction mass was refluxed 5-6 hours on water bath. TLC used for checked rate of reaction. After completion of reaction, put reaction mass in cruised ice drop by drop, filtered and recrystallized by ethyl alcohol (Figure 2 and Table 1).

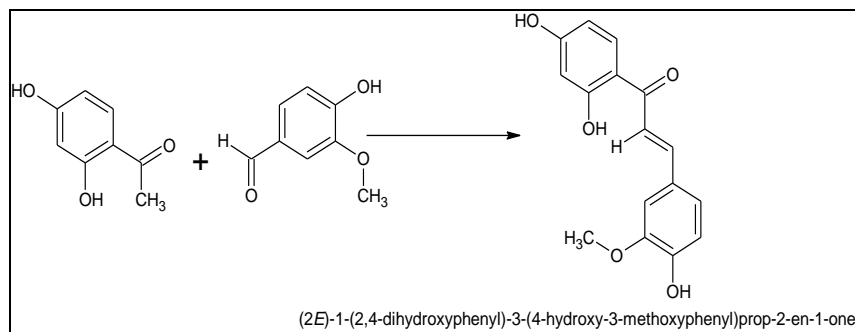


Figure 1: (2Z)-1-(2,4-dimethylphenyl)-3-(4-hydroxy-3-methoxyphenyl)prop-2-en-1-one

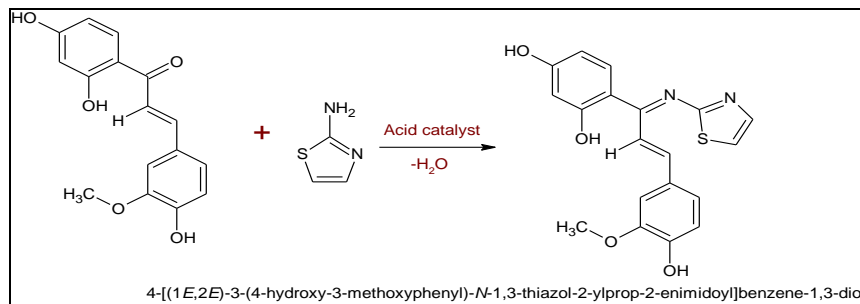


Figure 2: 4-[(1E,2E)-3-(4-hydroxy-3-methoxyphenyl)-N-1,3-thiazol-2-ylprop-2-enimidoyl]benzene-1,3-diol

Table 1: Physicochemical characterization data for chalcon and schiff base

Comp. Name	Molecular formula	Molecular weight	M.P ^o C	Yield	% of	% of	% of
				%	C	H	O
SP-1	C ₁₆ H ₁₄ O ₅	286	275 ^o C	79.35	67.13%	4.93%	27.94%
SP-2	C ₁₉ H ₁₆ N ₂ O ₄ S	368	289 ^o C	37.8	61.94%	4.38%	17.37%

RESULTS

Spectra Study of 4-[(1E, 2E)-3-(4-hydroxy-3-methoxyphenyl)-N-1,3-thiazol-2-ylprop-2-enimidoyl]benzene-1,3-diol

FT-IR spectral data:

1625 cm⁻¹ presence of (C=N), 1237 cm⁻¹ presence of (N=CH str), 1038 cm⁻¹, presence of (CH=N), 3422 cm⁻¹ presence of (N-H), 1436 cm⁻¹ presence of (C=N, Ar).

¹H NMR spectral data:

5.57 interpret (s, 1H, Ar-H),
6.65-6.68 interprets (m, 4H, Ar-H),
2.58 interpret (s, 3H, CH₃).

MS spectral data:

Molecular ion peck at 369 [M+1]

CONCLUSION

Resacetophenone condense with vanilline at room temperature got (2Z)-1-(2,4-dimethylphenyl)-3-(4-hydroxy-3-methoxyphenyl)prop-2-en-1-one. Which react with amino thiazole in presence of glacial acetic acid gave Schiff-base. Final product characterized by elemental analysis and spectroscopy.

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