**PREPARATION AND CHARACTERIZATIONS OF (2E)-1-(4-{(E)-[3,4,5-TRIMETHOXY PHENYL) METHYLIDENE]AMINO}PHENYL)-3-PHENYLPROP-2-EN-1-ONE**


**ABSTRACT**

In this present study, p-amino acetophenone condensed with benzaldehyde in ethanolic solution of sodium hydroxide to yield corresponding chalcone, which reacts with aromatic aldehydes in glacial acetic acid to yield corresponding Schiff bases. Final moieties have been characterized by FT-IR, \(^1\)H NMR and Mass Spectra.

**KEYWORDS**: Preparation, Characterization, Chalcone & Schiff base.

**INTRODUCTION**

The synthesis of chalcone linked with imine group in same compound became of great importance in organic chemistry to synthesis of various compounds. \(\alpha,\beta\)-Unsaturated ketones are biogenetic precursors of flavonoids in higher plants. Also known chemically as halcones, they consist of open-chain flavonoids in which the two aromatic rings are joined by a three carbon chain\(^{[1,2]}\). They display a wide range of pharmacological properties, including cytotoxicity toward cancer cell lines\(^{[3,4]}\), anti mitotic, anti mutagenic\(^{[5]}\). The chemistry of chalcones has generated intensive scientific interest due to their biological and industrial application. Chalcones are natural biocides and are well known intermediates in the synthesis of heterocyclic compounds exhibiting various biological activities\(^{[6]}\). Chalcones and their derivatives possess some interesting biological properties such as antibacterial, antifungal, insecticidal, anesthetic, anti inflammatory, analgesic. Etc.\(^{[7,8]}\). In this research work, we used chalcone and prepare Schiff-base which have wide range of pharmacological activities like antimicrobial, antiparasitic, anti-inflammatory, anticancer\(^{[9-13]}\) etc.
MATERIALS AND METHODS

Melting point were recorded in open capillaries and on Veergo melting point apparatus. The $^1$H NMR Spectra were recorded on a Bruker 300 MHz using TMS as an internal standard. The IR spectra were recorded on a Perkin Elmer Spectrum 100 FTIR Spectrophotometer and the Mass Spectra on a Waters Micromass Q-fit instrument. The chemical used are of A.R. grade.

Preparation of (2E)-1-(4-aminophenyl)-3-phenylprop-2-en-1-one

Equimolar quantities of substituted 4-amino acetophenone (0.675gm., 0.005 mol) and benzaldehyde (0.530gm., 0.005 mol) were dissolved in ethanol (15 ml), under stirring and aqueous NaOH (1.1gm. in 10 mL) was added drop wise. The reaction mixture was stirred at room temperature and kept for 4-6 hours. The reaction mixture was diluted with water and acidified with 10% HCl. The separated solid was filtered and crystallized using acetic acid to give compounds.

\[
\begin{align*}
\text{H}_2\text{N} & \quad \text{O} \\
\text{CH}_3 & \quad \text{CH}_3
\end{align*}
\]

Preparation of (2E)-1-(4-{(E)-[(3,4,5-trimethoxyphenyl)methylidene]amino}phenyl)-3-phenylprop-2-en-1-one

A mixture of (2E)-1-(4-aminophenyl)-3-phenylprop-2-en-1-one(1.115gm.,0.005 mol) and 3,4,5-trimethoxybenzaldehyde(0.980gm., 0.005 mol) was taken in absolute ethanol(20 ml.) and 1-2 drops of glacial acetic acid were added. Then the mixture was refluxed for 6-8 hours on water bath. The progress of the reaction was monitored by TLC. The excess solvent was distilled off and then Remaining residue was poured in crushed ice. The separated solid was filtered, washed and recrystalized from ethanol.
3,4,5-trimethoxybenzaldehyde + (2E)-1-(4-aminophenyl)-3-phenylprop-2-en-1-one

Table: Physicochemical characterization data for chalcon & Schiff base

<table>
<thead>
<tr>
<th>Comp. Name</th>
<th>Molecular formula</th>
<th>Molecular weight</th>
<th>M.P °C</th>
<th>Yield %</th>
<th>% of C</th>
<th>% of H</th>
<th>% of N</th>
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<tbody>
<tr>
<td>Kpp-1</td>
<td>C&lt;sub&gt;23&lt;/sub&gt;H&lt;sub&gt;19&lt;/sub&gt;N</td>
<td>309.40</td>
<td>200</td>
<td>79.35</td>
<td>89.28</td>
<td>6.19</td>
<td>4.53</td>
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<tr>
<td>Kpp-2</td>
<td>C&lt;sub&gt;25&lt;/sub&gt;H&lt;sub&gt;23&lt;/sub&gt;NO&lt;sub&gt;4&lt;/sub&gt;</td>
<td>401.45</td>
<td>60</td>
<td>37.80</td>
<td>74.79</td>
<td>5.77</td>
<td>3.49</td>
</tr>
</tbody>
</table>

Spectra study of (2E)-1-(4-[(3,4,5-trimethoxyphenyl)methylidene]amino)phenyl)-3-phenylprop-2-en-1-one

IR(KBr. cm<sup>-1</sup>):1622 cm<sup>-1</sup>(C=N),1235 cm<sup>-1</sup>(N=CH str), 1036 cm<sup>-1</sup>, 1010(CH=N),3420 cm<sup>-1</sup> (N-H),1438 cm<sup>-1</sup> (C=N, Ar),<sup>1</sup>H NMR(ppm) (CDCl<sub>3</sub>):5.56(s,1H,Ar-H),6.66-6.68(m,4H,Ar-H),2.59(s,3H,CH<sub>3</sub>), MS:402.45[M+1].

RESULTS AND DISCUSSION

4-aminoacetophenone react benzaldehyde room temp. and base catalyst reaction and we got (2E)-1-(4-aminophenyl)-3-phenylprop-2-en-1-one, further its react with 3,4,5-trimethoxy benzaldehyde in presence 1 ml. of glacial acetic acid gave Schiff base. Title moieties synthesized were adequately characterized by their elemental analyses and spectral IR,<sup>1</sup>H-NMR and Mass Spectra.

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