

SYNTHESIS AND BIOLOGICAL SCREENING OF SOME
AZOMETHINE DERIVATIVES OF 2,4-
DIMETHYLCARBOLIC ACID



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SYNTHESIS AND BIOLOGICAL SCREENING OF SOME
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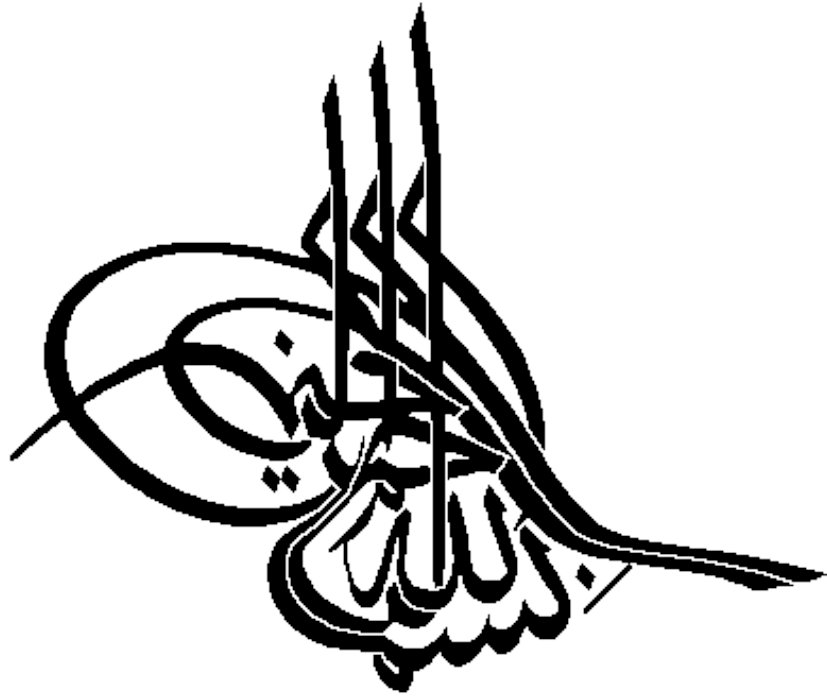
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In the name of

Allah,

The most Compassionate,

The most merciful

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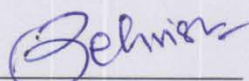
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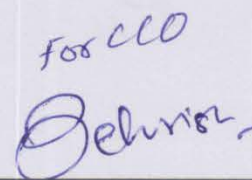
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RESEARCH COMPLETION CERTIFICATE

Certified that the research work contained in this thesis titled, “Synthesis and Biological Screening of some Azomethine Derivatives of 2,4-Dimethylcarbolic Acid” has been carried out and completed in by **Ata Ur Rehman, ID:13001140002**. The quantum and the quality of the work contained in this thesis is adequate for the award of Degree of M.Phil.

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Dedication

**Affectionately Dedicated to My adorable &
caring Parents and late Sister due to whom
Prayers and Cooperation I am able to reach
this status.**

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With modest and most indebted words, I am thankful to **Almighty Allah**, the only Initiator of the whole universe, the most Compassionate & most Merciful, who created us as a Muslim and blessed us with knowledge to discriminate between right and wrong.

Countless daroods upon the **Holy Prophet Hazrat Muhammad (P.B.U.H)**, the source of knowledge and blessings for entire mankind.

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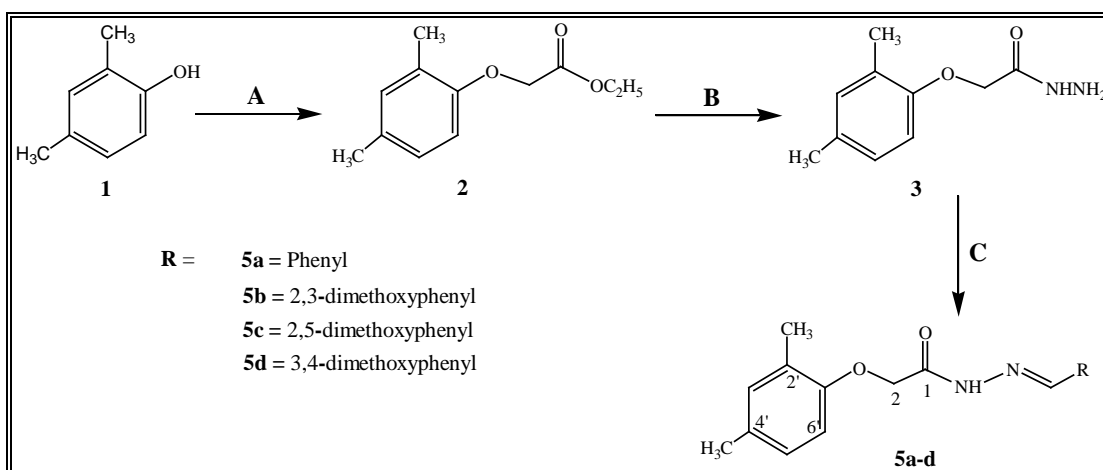
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ATA UR REHMAN

ABSTRACT

The molecules comprising azomethine group are famous to possess biological activities. In the present work, the synthesis of *N'*-Substitutedbenzylidene-2-(2,4-dimethylphenoxy) acetohydrazide (**5a-d**) has been performed using 2,4-Dimethylphenol(**1**) as precursor. The molecule **1**, was transformed into ethyl 2-(2,4-dimethylphenoxy)acetate (**2**) on refluxing with ethyl 2-bromoacetate in ethanol medium in the presence of base KOH. Ethyl ester **2**, was refluxed with hydrated hydrazine (80%) in ethanol medium to produce 2-(2,4-dimethylphenoxy) acetohydrazide (**3**). The target molecules **5a-d**, were manufactured by stirring **3** with phenyl/aryl carboxaldehyde (**4a-d**) in methanol medium in the presence of glacial acetic acid. The synthesized molecules were characterized by physical spectral data and estimated for antibacterial and anti-enzymatic activities.

OVERALL SCHEME FOR SYNTHESIS OF AZOMETHINE DERIVATIVES



Scheme 1: Outline for synthesis of *N'*-Substitutedbenzylidene-2-(2,4-dimethylphenoxy) acetohydrazide (**5a-d**); Reagents and conditions: (A) Ethyl 2-bromoacetate/EtOH/KOH/Reflux for 6 hours (B) 80% Hydrated hydrazine/EtOH/Reflux for 4 hours (C) Phenyl/aryl carboxaldehydes (**4a-d**)/MeOH/Glacial acetic acid/Stir for 3-4 hours.

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NOMENCLATURE

Serial No.	Abbreviations	Detail
1	NMR	Nuclear Magnetic resonance
2	FTIR	Fourier transform infrared
3	EIMS	Electron Impact Mass Spectrometry
4	MIC	Minimum inhibitory concentration
5	LOX	Lipoxygenase
6	IC ₅₀	50% enzyme Inhibition Concentration