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

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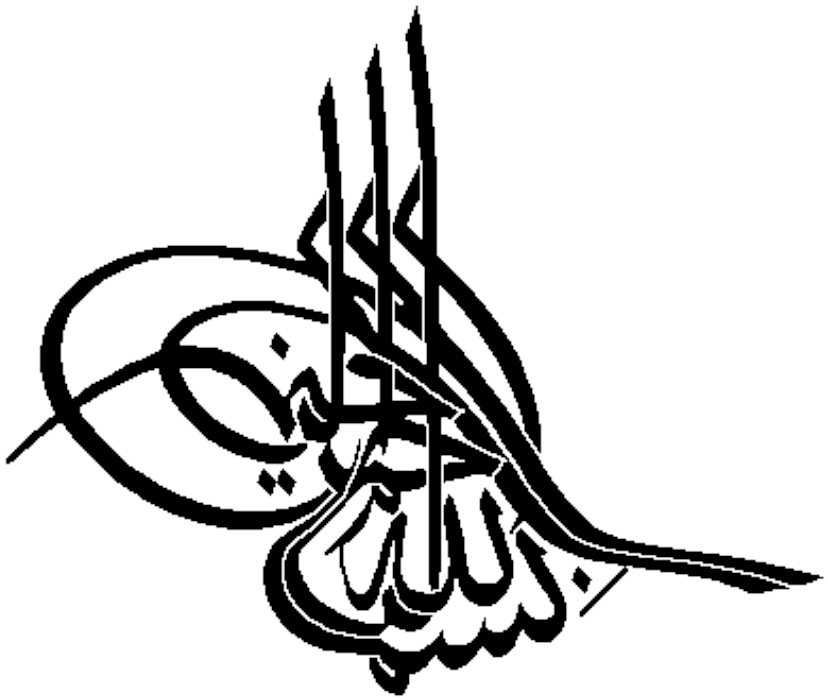

In the name of

Allah,

The most Compassionate,

The most merciful

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I Ata Ur Rehman S/O Muhammad Anwar ID: 13001140002Session **2013-2015** hereby declare that the matter printed in the thesis titled**"Synthesis and Biological Screening of some Azomethine Derivatives of 2,4-Dimethylcarbolic Acid"** is my own work and has not been printed, published and submitted as research work, thesis or publication in any form in any University, Research institution etc. in Pakistan or Abroad.

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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.

Supervisor **External Examiner**

Dr Sammia Shahid **Chairperson,** Department of Chemistry, UMT, Lahore.	**Dr Muhammad Azhar Iqbal** **Dean** School of Science, UMT, Lahore.

Dedication

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

ACKNOWLEDGEMENT

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.

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

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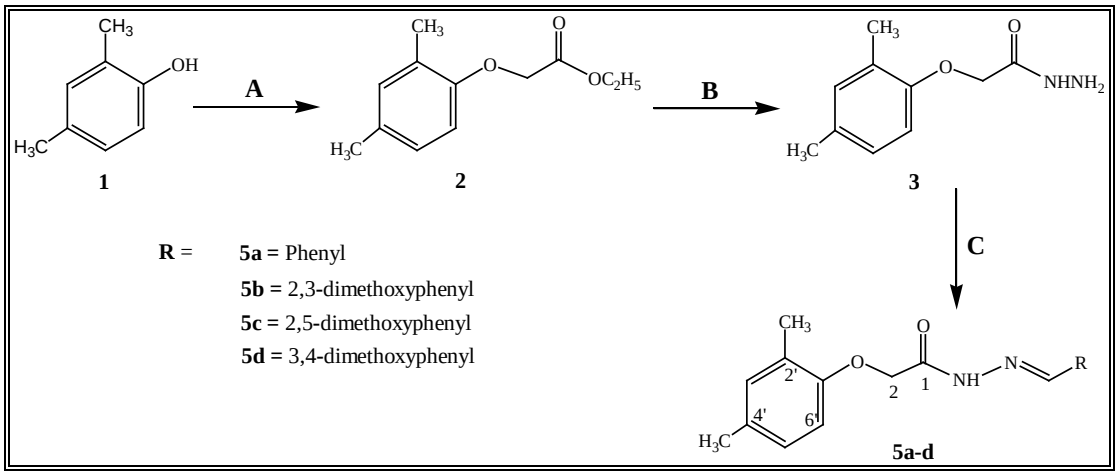
I have no words to acknowledge the sacrifices, efforts, lot of prayers, guidance, support, encouragement and firm dedication from my loving **Father** and my caring **Mother** whosemoral support encouraged me to complete my thesis. Many thanks are due to my **cute sisters** who helped me to achieve success in every sphere of life progressively. Words become meaningless when I look at them as icons of strength for being what I am today.

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 DERIVATINES



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