Abstract

The thesis entitled "**A new templates of 6,7,8,9-Tetrahydro-5-benzocycloheptenones and their biological evaluation, Total synthesis of Dendrodolide-I and Regioselectively derived Pyranocoumarins**" has been divided into five chapters.

CHAPTER I: This chapter further divided into section A and B.

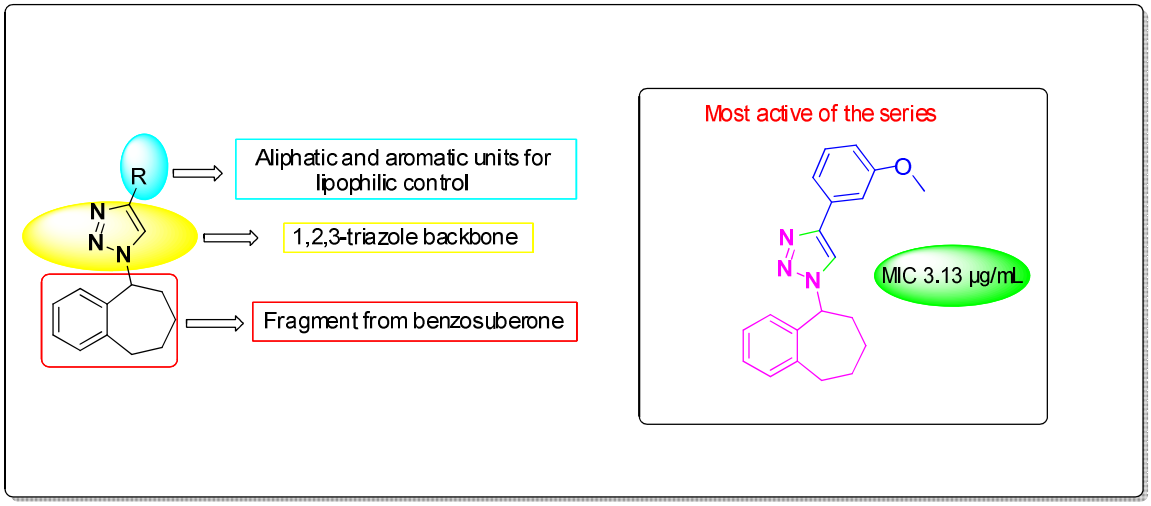
Section A: A brief review on 6,7,8,9-Tetrahydro Benzocycloheptenones

This chapter deals with the literature survey of 6,7,8,9-Tetrahydro-5-Benzocycloheptenones (Benzosuberone) wherein The synthesis of benzosuberone and its fused heterocyclic derivatives is a topic of growing interest especially in medicinal chemistry. Efficient introduction of this moiety into bioactive molecules, especially in the positions responsible for their physiological profile, becomes a very important direction in pharmaceutical studies that stimulates work directed to elaboration of synthetic methodology for various compounds containing benzosuberone based fused heterocycles. The existing methods for direct synthesis of fused heterocycles do not allow always for the introduction of benzosuberone based fused heterocyclic moiety in the required position of the molecule. As a result, a more flexible synthetic approach is required based on the application of simple and readily available benzosuberone derivatives is a good supplement for direct synthetic methods and is now a days gaining importance. Hence, we turned our interest towards the development of an environmentally benign protocol for the synthesis of diverse fused

benzosuberone derivatives that might have an extensive scope from both industrial and biological significance.

Section B: A Convenient Synthesis and screening of benzosuberone-linked triazoles against *Mycobacterium tuberculosis*.

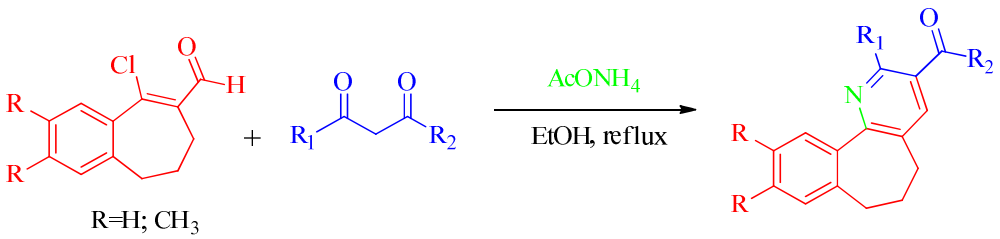
This chapter deal with introduction to triazoles and Literature review on antitubercular activity of triazole containing compounds. The present work part discuss about the A series of benzosuberone bearing 1,2,3-triazoles were rationally designed and alkyl/aryl groups appended on 1,2,3-triazole derivatives were synthesized using click chemistry and evaluated for their *in vitro* antimycobacterial activity against *Mycobacterium tuberculosis* H37Rv (ATCC27294).



CHAPTER II: This chapter further divided into section A and B.

Section A: Three-component, one-pot synthesis of benzo[6,7]cyclohepta[1,2-*b*]pyridine derivatives under catalyst-free conditions and evaluation of their anti-inflammatory and Anti-proliferative activity.

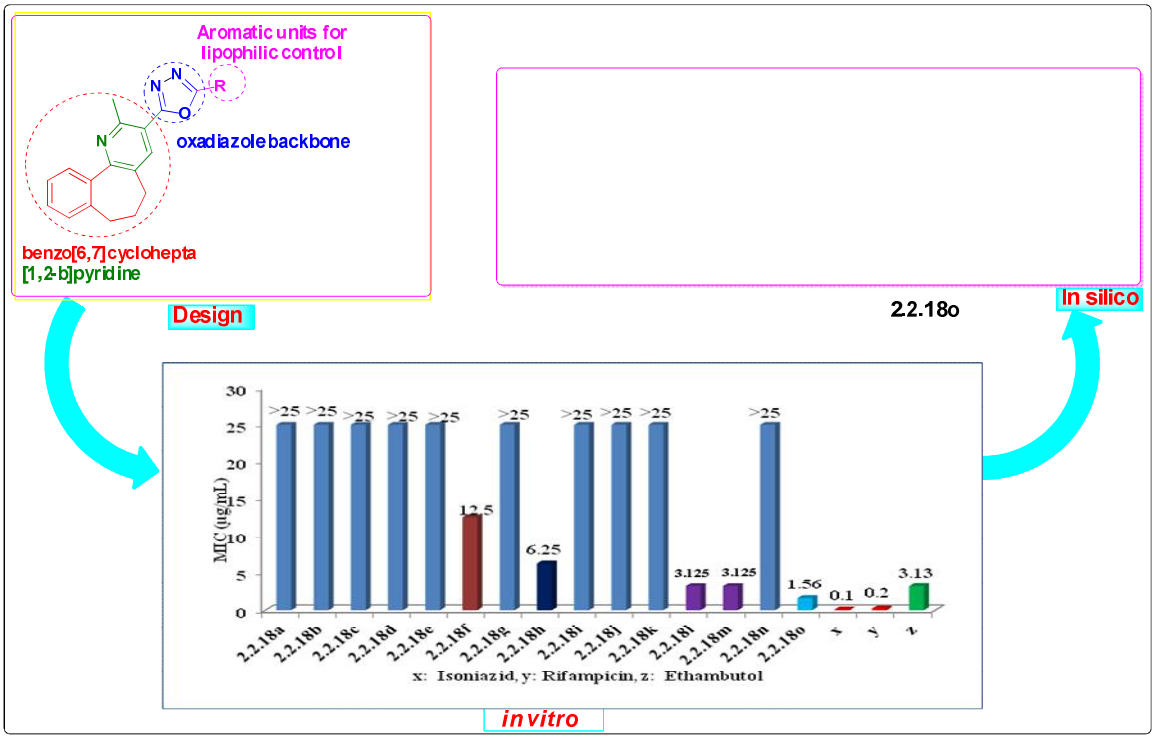
This section deals with a very brief introduction to pyridine, Benzocyclohepta[1,2-*b*]pyridines and Previous work for synthesis of benzocyclohepta[1,2-*b*]pyridines by MCRs. The present work part, we discuss about the synthesis of benzo[6,7]cyclohepta[1,2-*b*]pyridine derivatives using *β*-chloroacroleins, 1,3-dicarbonyls and ammonium acetate under catalyst free conditions by using ethanol as reaction media and evaluation of their anti-inflammatory and Anti-proliferative activity.



Section B: Design, synthesis and molecular docking studies of benzo[6,7]cyclohepta[1,2-b]pyridine -1,3,4- oxadiazole hybrids as antituberculosis Agents.

This chapter deal with introduction to oxadiazoles and Literature review on antitubercular activity of 1,3,4-Oxadiazoles clubbed with pyridine containing Compounds. The present work part discuss about the Design,

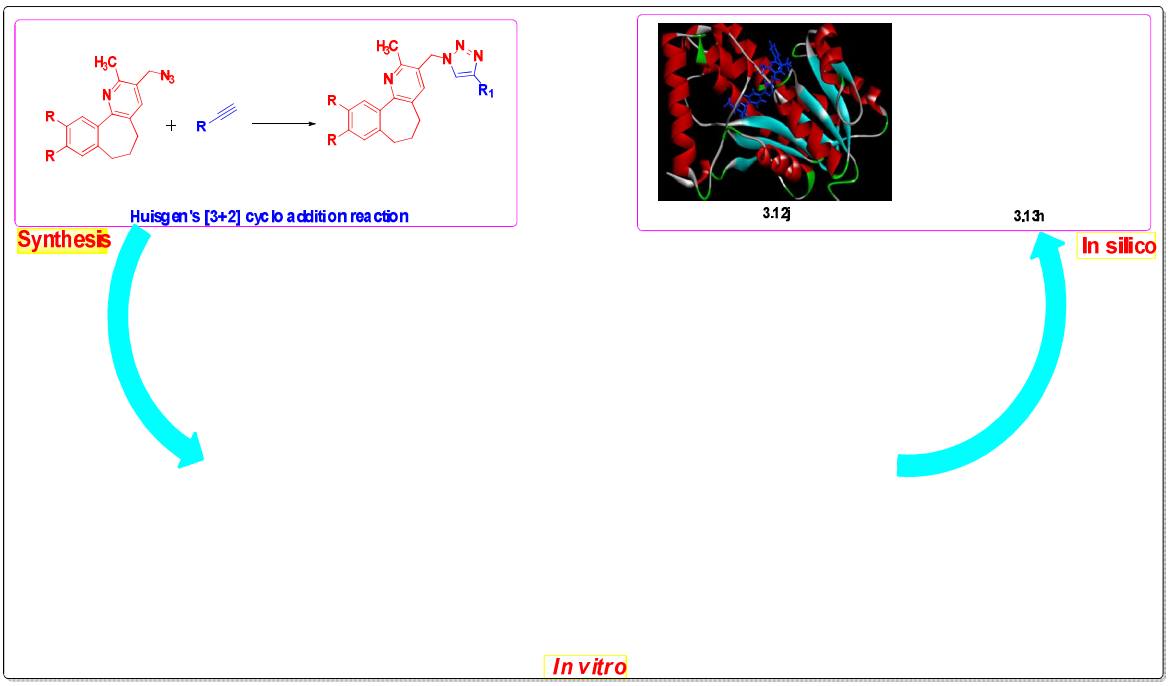
synthesis and molecular docking studies of benzo[6,7]cyclohepta[1,2-b]pyridine -1,3,4-oxadiazoles and evaluated for their *in vitro* antimycobacterial activity against *Mycobacterium tuberculosis* H37Rv (ATCC27294).



CHAPTER III: Design, synthesis and Molecular docking studies of benzo[6,7]cyclohepta[1,2-b]pyridine -1,2,3- triazole hybrids as antituberculosis Agents.

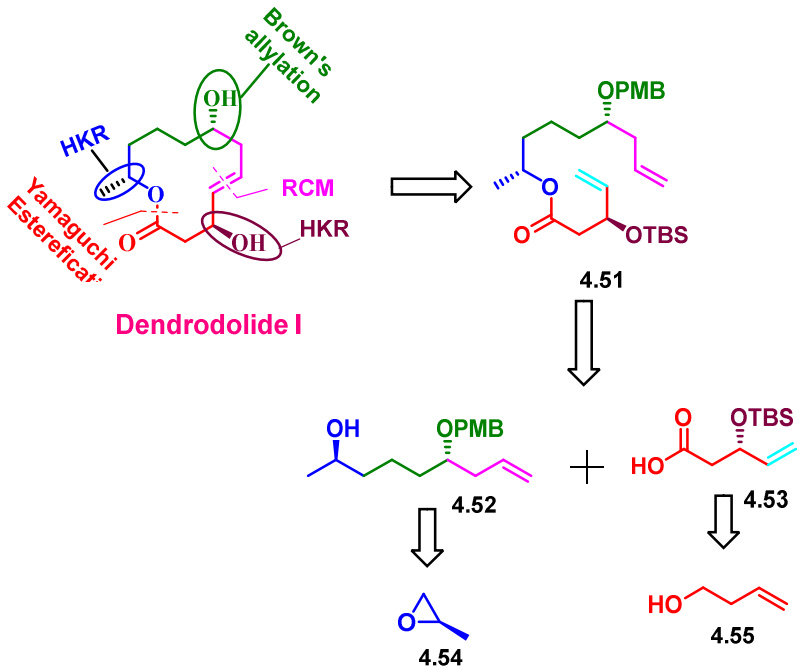
This chapter deals with the introduction to Mycobacterium tuberculosis and literature survey on 1,2,3-Triazole derivatives for treatment of tuberculosis. The present work part discuss about the Design, synthesis and molecular docking studies of benzo[6,7]cyclohepta[1,2-

b]pyridine -1,2,3-Triazole and evaluated for their *in vitro* antimycobacterial activity against *Mycobacterium tuberculosis* H37Rv (ATCC27294).



CHAPTER IV: Total synthesis of Dendrodolide I

This chapter deals with the introduction to macrolides, literature survey on natural products containing 12-member ring lactones and Earlier synthetic approache for Dendrodolide I. The present work part describes the total synthesis of Dendrodolide I starting from commercially available propylene oxide and 3-buten-1-ol. The key steps involved in the synthetic sequence of Dendrodolide I are the Jacobsen hydrolytic kinetic resolution (HKR), Brown allylation, Yamaguchi esterification and ring-closing metathesis.



CHAPTER V: Lewis Acid - Catalyzed Cyclization of 4-Hydroxycoumarine with Propargylic alcohols: Regioselective synthesis of Pyranocoumarins.

This section deals with a very brief introduction to pyranocoumarins and previous synthetic approaches for pyranocoumarins. The present work part, details the $BF_3.Et_2O$ catalyzed synthesis of novel pyranocoumarins.