3. AIM AND OBJECTIVES

4-(3H)-Quinazolinone are an important class of fused heterocycles and are reported to have a wide range of biological activities. In spite of the fact that there were a number of drugs are available in the market, having 4-(3H) –Quinazolinone structure, the search for new molecules is ever demanding. Moreover interesting classes of heterocyclic compounds like Quinazolinone analogues are being studied by many researchers for their useful biological properties such as antibacterial, antifungal, antiviral, antitubercular, anticonvulsant, analgesic, anti-inflammatory, anthelmintic and antitumor activities.

This project is mainly focused on the innovative strategies to develop some quinazolinone compounds. Also attempts were made to synthesize some new 3-substituted quinazolinone compounds and understand their biological potential.

The present thesis embarks on the following objectives:

Based on the literature survey the objectives of the proposed work are given below.

i. To study and develop simple and facile procedures for the synthesis of title compounds.

ii. To synthesize some 4-(3H) - Quinazolinone derivatives by using Microwave technique.

iii. To subject the title compounds for physical characterization such as Melting point, Rf value and solubility.

iv. To subject all the synthesized compounds to analysis using the Lipinski Rule of 5.

v. To subject all the synthesized 4-(3H)-Quinazolinone derivatives for characterization by IR, 1H-NMR and Mass spectral analysis.

vi. To subject few synthesized 4-(3H)-Quinazolinone derivatives for characterization by $^{13}$C-NMR.
vii. To subject few synthesized 4-(3H) - Quinazolinone to X Ray Diffraction study.

viii. To perform docking study of the synthesized 4-(3H)-Quinazolinone derivatives using Schrödinger (GLIDE) software on DHFR, Antimicrotubulin, COX-2 as targets for enzyme inhibition study.

ix. To perform a QSAR study of the synthesized 4-(3H) - Quinazolinone derivatives by Schrödinger (GLIDE) software using DHFR as a target enzyme.

x. To perform the Acute oral toxicity, Analgesic, Anti-inflammatory, Anticancer, Invitro antimicrobial, antioxidant, anti-inflammatory and cytotoxic activity of these synthesized 4-(3H)-Quinazolinone derivatives