SUMMARY OF THE PRESENT THESIS:

The present thesis entitle synthesis, characterization, \textit{in silico} and \textit{in vitro} study of some novel sulfa hydrazone substituted 4-(3H)-quinazolinone heterocyclic derivatives is divided into four chapters.

The chapter-1, deals with introductory review of 4-(3H)-quinazolinones in the point of synthetic methods, and natural occurrence and their medicinal importance.

In the chapter-2 synthetic aspects of various seven series of sulfa hydrazone substituted 4-(3H)-quinazolinone heterocyclic derivatives have been described. The synthesis of seven series is further divided into the three sections. In the first section synthesis and characterization of novel 4-amino-N-(2-methyl-4-oxo-4H-quinazolin-3-yl)benzenesulfonamide and its derivatives is described. Second section includes the reaction of 4-amino-N-(2-methyl-4-oxo-4H-quinazolin-3-yl)benzenesulfonamide and its derivatives with compounds like ethylacetoacetate, acetylacetone, and thiazolidones. The third section comprises synthesis of pyrazolinone, pyrazole and pyrimidinone derivatives using sulfa hydrazone substituted 4-(3H)-quinazolinone compounds.

All the synthesized compounds in chapter-2 have been characterized by conventional methods such as melting point, elemental analysis and spectral techniques like IR, Mass, $^1$H NMR and $^{13}$C NMR.

In the chapter-3 \textit{in silico} evaluation of all the seventy compounds (Q1-Q70, chapter-2) is discussed. In this study compound was screened by Lipinski rule of five, carcinogenicity and mutagenicity. Out of seventy compounds only twenty compounds were screened for the further study. These compounds were chosen for virtual screening for their anti tuberculosis, anti malarial and anti
HIV activities. Six compounds (Q31, Q35, Q41, Q42, Q45 and Q46) were screened from the above study out of this Q42 and Q35 having drug like property. These novel and potent lead compounds could serve as advanced leads for further optimization.

In chapter-4, screened twenty compounds by in silico study was further, used for their in vitro study against Bacillus megaterium, Escherichia coli, Pseudomonas aerugenosa and Proteus vulgaris. Besides that the compounds were also analyzed for their response against the Methicillin-Resistant Staphylococcus aureus (MRSA) strains and some of them (Q1, Q8, Q10, Q25, and Q42) have shown good results against particular species.