This thesis entitled “green Synthetic approach to octahydroquinazolines and bis octahydroquinazolines and Study of their Biological activities” presents development of novel green synthetic methodologies of biologically important octahydroquinazolines and bis-octahydroquinazolines from a important class of synthons called enaminone and bis-enaminones. The thesis has been divided into five chapters.

Chapter I of the thesis describes a brief background of the work and a brief literature survey on the biological importance of the relevant heterocyclic systems. The chapter also deals with the fact that in many cases bis-heterocycles are more potent than their monomeric analogues.

Chapter II involves a brief literature survey on the synthesis of enaminones and their conversion into quinazolines. This chapter describes our green synthetic strategies for a series of hitherto unreported 1,2,3,4,5,6,7,8-octahydroquinazolines and bis 1,2,3,4,5,6,7,8-octahydroquinazolines in which the quinazoline systems have been linked through flexible aliphatic chains and rigid aromatic linkers. This chapter is divided into three parts. Part-I deals with the synthesis of 1-methyl-3-alkyl/aryl/aralkyl-5-oxo-7,7-(unsubstituted/substituted)-1,2,3,4,5,6,7,8-octahydroquinazolines & bis 1-methyl-3,3’-(alkane/arene)diyl-5-oxo-7,7-(unsubstituted/substituted)-1,2,3,4,5,6,7,8-octahydroquinazolines. Part-II deals with the synthesis of 1-benzyl-3-alkyl/aryl/aralkyl-5-oxo-7,7-(unsubstituted/substituted)-1,2,3,4,5,6,7,8-octahydroquinazolines & bis 1-
benzyl-3,3’-(alkane/arene)diyl-5-oxo-7,7-(unsubstituted/substituted)-1,2,3,4,5,6,7,8-octahydroquinazolines. Part-III deals with the synthesis of 1-phenylethyl-3-alkyl/aryl/aralkyl-5-oxo-7,7-(unsubstituted/substituted)-1,2,3,4,5,6,7,8-octahydroquinazolines & bis 1-phenylethyl-3,3’-(alkane/arene)diyl-5-oxo-7,7-(unsubstituted/substituted)-1,2,3,4,5,6,7,8-octahydroquinazolines.

**Chapter III** deals with a short literature survey on the superiority of some dimeric heterocycles than their monomeric counterpart followed by synthesis of 1,1’-(alkanediyl) bis (5-oxo-3-alkyl/aryl/aralkyl-1,2,3,4,5,6,7,8-octahydroquinazoline from bis enaminones.

**Chapter IV** involves brief literature survey on the change in the potency as inhibitors of the molecule with the modification of substituents at different position of the quinazoline moiety. This chapter presents a facile one-pot synthesis of hitherto unreported 1-(2-hydroxyethyl)-3-alkyl/aryl/aralkyl/hydroxyethyl-5-oxo-1,2,3,4,5,6,7,8-octahydroquinazoline & 3,3’-(alkanediyl) bis (1-(2-hydroxyethyl)-5-oxooctahydroquinazoline.

**Chapter V** contains a short literature reports on the anti microbial activities of quinazolines followed by antibacterial and anti fungal studies of some synthesised quinazolines and bis octahydroquinazolines.

Each chapter is framed into introduction, Results and discussions and experimental section. The entire documentation in this thesis is supported by appropriate
references at the end of each chapter. The reference of the published work of the present investigation is cited in the respective chapter.