The thesis starts with introductory chapter on overview of pyrazole and quinoline heterocycles. A literature survey on pyrazole and quinoline containing medicinally active natural and synthetic compounds, different synthetic approaches and reactions of pyrazole and quinoline as well as introduction of pathogens and Methods for biological evaluation has been discussed.

Second chapter deals with a novel series of fluoro substituted pyrazolylpyrazolines. The targeted compounds were synthesized in good to excellent yield from pyrazole chalcones and substituted phenyl hydrazine hydrochlorides under microwave irradiation. The synthesized compounds were screened for their preliminary *in vitro* antibacterial activity against a panel of pathogenic strains of bacteria and fungi, antituberculosis activity against *Mycobacterium tuberculosis H37Rv* and antimalarial activity against *Plasmodium falciparum*.

Third chapter describes design and synthesis of a novel series of polyhydroquinoline scaffolds under ultrasonic irradiation by one-pot three-component cyclocondensation reaction of 3-methyl-5-substituted aryloxy-1-phenyl-1H-pyrazole-4-carbaldehydes with malononitrile and various enhydrazinoketones in the presence of piperidine as basic catalyst. All the synthesized compounds were evaluated for their *in vitro* antibacterial activity against a panel of pathogenic strains of bacteria and fungi, *in vitro* antitubercular activity against *Mycobacterium tuberculosis* H37Rv strain and also for their *in vitro* antimalarial activity against *Plasmodium falciparum*. The cytotoxicity of the synthesized compounds was also tested using a bioassay of *Schizosaccharomyces pombe* cells at the cellular level.

Fourth chapter deals with synthesis of a novel series of fluoro substituted pyrazole nucleus clubbed with 1,3,4-oxadiazole scaffolds in good yield. The newly synthesized compounds were screened for their preliminary *in vitro* antibacterial activity against a panel of pathogenic strains of bacteria and fungi; antituberculosis activity against *Mycobacterium tuberculosis* H37Rv and antimalarial activity against *Plasmodium falciparum.*

Fifth chapter describes microwave assisted synthesis of series of novel morpholinoquinoline based conjugates with pyrazoline moiety. The newly synthesized compounds were screened for their preliminary *in vitro* antibacterial activity against a panel of pathogenic strains of

bacteria and fungi, antituberculosis activity against *Mycobacterium tuberculosis* H37Rv and antimalarial activity against *Plasmodium falciparum*. The cytotoxicity of the synthesized compounds was tested using bioassay of *Schizosaccharomyces pombe* cells at cellular level.

Sixth chapter introduces novel series of 2-morpholinoquinoline scaffolds containing 1,2,4-oxadiazole moiety. The targeted compounds were designed and synthesized in good yield. The synthesized compounds were screened for their preliminary *in vitro* antibacterial activity against a panel of pathogenic strains of bacteria and fungi. In silico molecular docking study, In silico pharmacokinetic evaluation and fffect of compounds on the integrity of DNA of *s. pombe cells* also carried out.The cytotoxicity of the synthesized compounds was tested at different concentrations using bioassay of *S. pombe* cells at the cellular level.