Summary

The synthesis and characterization of novel triazinones, pyridazinones, azetidinones, imidazolidinones and thiazolidinones of 4-methyl, 4-phenyl and 2-phenyl substituted quinolines were studied and their physical and pharmacological properties were examined.

Chapter 1 illustrates the synthesis of substituted triazino quinolines. The precursor being 2-hydroxy-4-methyl quinoline, 2-hydroxy -4-phenyl quinoline and 4-hydroxy-2-phenylquinoline were synthesised from its acetanilide followed by cyclisation.

The hydroxy compounds obtained on cyclisation were further converted into its chloro derivatives which inturn were converted to corresponding thiosemicarbazones by reacting with thiosemicarbazide. Thiosemicarbazones thus obtained underwent cyclisation with chloroacetyl chloride to achieve the hitherto novel triazino quinolines.

The **second chapter** describes the synthesis of linear and angular pyridazino quinolines by the reaction of chloro acetyl chloride and hydrazino-phenyl quinolines. The hydrazino-phenyl quinolines were obtained from 2-chloro-4-phenylquinoline and 4-chloro-2-phenylquinolines.

In **chapter 3**, the utility of schiff bases for the synthesis of novel heterocyclics viz., azetidino quinolines, imidazolidino quinolines and thiazolidino quinolines were explained. Accordingly, Schiff bases were obtained by the condensation of salicylaldehyde with hydrazinones which in turn was reacted with chloro acetyl chloride, glycine and thioglycolic acid respectively.

The hitherto novel heterocycles were characterized by CHNS, IR, ^{1}H-NMR, ^{13}C-NMR,2D-NMR and MASS spectral studies

Chapter 4 narrates *insilico* and *Z-scan* instrumental techniques to study the nonlinear optical behaviour of the synthesised compounds.

In *insilico* method, the second order hyperpolarizibility of all the compounds were calculated and compared with that of standard urea. Further the *Z scan* technique was utilized to find out the non linear optical character of the selected synthesised compounds experimentally.

Chapter 5 reports the *invitro* and *invivo* activity of the synthesised compounds.

The *invitro* antibacterial, antioxidant and cytotoxic studies were carried out. The results obtained were in good agreement with that of standard.

The *invivo* antiinflammatory and antinociceptive capabilities of the compounds were explained using carrageenan induced acute inflammation model and acetic acid induced writhing model respectively.