SUMMARY

A series of pyrazole fused 1, 4-thiazepine derivatives were synthesized by L-proline catalysed one-pot procedure. Though L-proline is an amphoteric molecule with both amine and carboxylic acid end, it worked as an enamine base for the catalysis. This enamine based mechanism was proposed to get the desired targets in less time and good yield. This protocol provides a synthetic route for an efficient synthesis of 1, 4-thiazepines with good yields (Chapter-2).

We intend to synthesise molecules with cytotoxic activity which was achieved by this protocol. We have screened the synthesized 1, 4-thiazepines against to six cell lines namely ‘Pancreas (PANC1), Renal (ACHN), Colon (HCT116), Non-small cell lung (H460), Lung (CALUl) and Normal breast epithelium (MCF10A) in 1μM and 10 μM dosage levels. All the compounds were observed to possess good to moderate activity.

3-acetyl-4-phenyl quinolines and acridines were synthesized by ultrasonication, green chemistry protocol (Chapter-3) with is hitherto unreported. We observed that compared to the conventional procedure, present protocol leads to the synthesis of quinolines and acridines molecules with good yield. This reaction condition is time saving with environmentally benign. The compounds synthesized in chapter were used as precursor molecules for further series of compounds in later chapters.

In the continuation of that we have synthesized two series of new quinoline-3-yl-chalcones (Chapter-4) which in turn converted into pyrazolines (Chapter-5). All chalcones derivatives were synthesized by ultrasound assisted synthesis and pyrazolines by conventional procedure and were screened against HRBC heat induced haemolysis to study about their anti-inflammatory activities. All the synthesized chalcones and most of the synthesised pyrazolines were showed good IC50 values of HRBC membrane inhibition, very close to the standard drug diclofenac sodium.