LITERATURE REVIEW:

A literature work is carried out on heterocyclic compounds particularly synthetic work and therapeutic activity of chalcone derivatives, pyranones, pyrimidines, piperidinones, cyano pyridones, cyano pyridines, cyano pyrans, pyrazolines, indazoles and isoxazoles derivatives.

There are varieties of methods available for preparation of above derivatives; however we have proposed to take following synthetic work for study. Biological activity and toxicity test is proposed to be examined to observe the pharmacologically effects of propose synthetic compounds.

A STUDIES ON CHALCONE DERIVATIVES

The chemistry of chalcones containing an active keto-ethylenic linkage has assumed importance because of their versatility in the synthesis of many heterocyclic compounds. Furthermore, they are also associated with wide spectrum of pharmacological activities and industrial applications. The chalcones are reported to possess antimicrobial\(^1\), antileishmanial\(^2\), antimalarial\(^3\) and anticancer\(^4\) activities.

B STUDIES ON PYRANONES DERIVATIVES

Pyranone nucleus has been the subject of several investigators in the realm of potential therapeutic activities like antimicrobial\(^5\).

C STUDIES ON PYRIMIDINES DERIVATIVES

Pyrimidine derivatives are biologically important products and their synthesis and chemistry have received remarkable attention. It has been reported that pyrimidine derivatives are associated with various biological activities, like antimicrobial\(^6\), adenosine A3 receptor antagonist\(^7\).

D STUDIES ON PIPERIDINONES DERIVATIVES

Piperidinone derivatives are the important class of therapeutic agents, which have been deeply studied during search on new potential agents. They have been found to be active as CNS depressant\(^8\) and fungitoxic\(^9\) etc.

E STUDIES ON CYANO PYRIDONES DERIVATIVES

In view of powerful biological activities shown by cyano pyridones, like MAP kinase inhibitor\(^10\), anti-inflammatory\(^11\), analgesic\(^12\), antipyretic\(^13\), anticancer\(^14\), vasorelaxant\(^15\), survivian inhibitors\(^16\), colon tumor cell growth inhibitors\(^17\) etc.
STUDIES ON CYANO PYRIDINES DERIVATIVES

Biological importance of cyanopyridine derivatives is well known. They have been reported to be active as an anti-inflammatory\textsuperscript{18}, antimicrobial\textsuperscript{19}, antibacterial\textsuperscript{20}, antioxidant\textsuperscript{21} etc.

STUDIES ON CYANO PYRANS DERIVATIVES

Cyano pyran derivatives have attracted considerable attention in view of their great therapeutic importance as antitubercular\textsuperscript{22}, antimicrobial, anti-inflammatory\textsuperscript{23} etc.

STUDIES ON PYRAZOLINES DERIVATIVES

Literature survey reveals that pyrazolines are well known for their biological activities. These have been reported to be active as antimicrobial\textsuperscript{24}, antifungal\textsuperscript{25}, antiproliferative\textsuperscript{26}, non-purine xanthine oxidase inhibitor\textsuperscript{27}, antiamoebic\textsuperscript{28} etc.

STUDIES ON INDAZOLES DERIVATIVES

Indazole derivatives have attracted considerable attention in view of their great therapeutic importance as antimicrobial\textsuperscript{29}, antitubercular\textsuperscript{30} etc.

STUDIES ON ISOXAZOLES DERIVATIVES

Isoxazole derivatives represent one of the modest class of compound possessing wide range of therapeutic activities, such as calcium channel blocker\textsuperscript{31}, DGAT inhibitors\textsuperscript{32}, anticancer\textsuperscript{33}, PPAR agonist etc.