

# *Preface*

## **Chapter-1: Introduction**

This chapter is concerned with the introduction of the subject, scope, objectives and significance of the research work included in the thesis. The recent literature relating to the research work has also been included.

## **Chapter-2: Three-component Synthesis of Structurally Diverse 3,4-Dihydropyrimidin-2(1H)-thione Derivatives.**

This chapter deals with the synthesis of a new 3 series of 15 therapeutically interesting structurally diverse 3,4-Dihydropyrimidin-2(1H)-thione derivatives incorporating nitrogen and sulphur heteroatoms by p\_TSA catalysed one-pot domino reaction of phenylthiourea with ethyl acetoacetate and aromatic aldehydes under refluxing conditions.

## **Chapter-3: Four-component Synthesis of Diversity Oriented Dihydropyridine fused heterocycles.**

This chapter deals with the synthesis of a new 5 series of 15 derivatives of dihydropyridine fused heterocycles by new synthetic strategy involving FeCl<sub>3</sub> catalysed four component reactions of arylamines, aromatic aldehydes and acetylenedicarboxylate with cyclic 1, 3-diketones. The different pyridine derivatives have

selectively synthesised depending upon the structure of cyclic 1, 3-diketone.

**Chapter-4: Three-component Synthesis of Structurally Diverse 2,10-dihydrobenzo[4,5-d]imidazo[1,2-a]pyrimidine-4-carboxylic acid derivatives.**

This chapter includes the synthesis of 5 series of 15 derivatives of structurally diverse benzimidazolopyrimidine-4-carboxylic acid containing pyrimidine ring system along with other biodynamic heterosystems by three-component reaction of pyruvic acid and aromatic aldehydes with substituted 2-aminobenzoimidazoles in ethanol media catalyzed by FeCl<sub>3</sub>.

**Chapter-5: Three-component Synthesis of Structurally Diverse 5H-benzo[4,5-d]thiazolo[2,3-b]pyrimidine-4-carboxylic acid Derivatives.**

This chapter includes the synthesis of 5 series of 15 derivatives of structurally diverse 5H-benzo[4,5-d]thiazolo[2,3-b]pyrimidine-4-carboxylic acid derivatives containing pyrimidine ring system along with other biodynamic heterosystems by three component reaction of pyruvic acid and aromatic aldehydes with 2-aminobenzothiazoles in ethanol media catalysed by FeCl<sub>3</sub>.

The purity of all the synthesized compounds was checked by thin layer chromatography. The structures of the synthesized compounds were assigned by their elemental analyses and spectral data.