

## List of Figures

Figure No.	Figure Caption	Page No.
Figure 1.1	Nitrogen containing some main class of organic compounds	1
Figure 1.2	Some biological active drugs containing amine functional group	3
Figure 1.3	Examples of some drugs containing amide group	7
Figure 1.4	Resonance stability of amide	7
Figure 1.5	Structure (A & B) and classifications (C & D) of oximes	10
Figure 1.6	Examples of some drugs containing oxime group	11
Figure 1.7	Synthesis and reactivity of oximes	11
Figure 1.8	Representative compounds containing pyridine substructure	15
Figure 1.9	Few biologically active compounds containing pyrrole moieties	18
Figure 1.10	Examples of pharmacologically active indole derivatives	20
Figure 1.11	Few examples of quinoxaline containing drugs	22
Figure 1.12	Structures of pharmaceutically active compounds possessing 1, 4-benzoxazine scaffolds.	24
Figure 1.13	Examples of biologically active 1,4-benzothiazine derivatives	26
Figure 2.1	Restricted rotation and non-planer conformations about N–N and N–C bond (1-4)	45
Figure 2.2	Synthesized <i>O</i> -vinyl oximes (I–V)	46
Figure 2.3	Two possible geometries of <i>syn</i> -isomer of (7)	49
Figure 2.4	Single crystal XRD structure of compound (I)	50
Figure 2.5	Two possible geometries of <i>trans</i> -isomer of (7)	53

Figure 2.6	Crystal structure of compound (III)	56
Figure 3.1	Some medicinally important molecules containing the amide group	78
Figure 3.2	Plausible mechanism of $\text{CeCl}_3 \cdot 7\text{H}_2\text{O}$ catalyzed transamidation	90
Figure 4.1	Plausible mechanism of TBHP initiated secondary amide transamidation	121
Figure 5.1	Resonance stability in amide	137
Figure 5.2	Reduction of amides via C-N and C-O bond cleavage	138
Figure 5.3	Plausible reaction mechanism of $\text{NaBH}_4$ induced reduction of amides	147
Figure 6.1	Structures of some pharmacologically active compounds containing quinoxaline, oxazine, thiazine or dioxin core moieties	164
Figure 6.2	Plausible mechanism of synthesis of Quinoxaline, Oxazine and Thiazine derivatives.	173