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The fundamental goal of this thesis is to create novel synthetic methodologies for the synthesis *N*-containing heterocyclic compounds.

The effective green synthesis of Nitrogen containing heterocyclic compounds is embodied in the thesis titled “**A Novel Approach for the Synthesis of *N*-based Heterocyclic Compounds and their Electrochemical Studies**”. **Chapter 1** provide a detailed explanation of multicomponent synthesis and its significance in organic synthesis, *N*-Containing heterocycles and its importance, and different methods for the synthesis of Nitrogen Containing Compounds.

**Chapter 2** will describe the synthesis of isatin hydrazones at room temperature use two graphite electrodes under electro-organic synthesis through formation of the C-N Bond. **Chapter 3** will describe the green synthesis of 2-(2-oxoindolin-3-ylidene) malononitrile use two electrodes (one is Iron and another is Carbon cloth) under electro-organic synthesis through formation of the C=C bond formation. **Chapter 4** will describe synthesis of pyrazolo pyridine-7-ol and propargylated pyrazolo[3,4-*b*] pyridines. **Chapter 5** will describe the “click chemistry” by chemist K. Barry Sharpless to characterize a group of facile, potent, highly selective and modular reactions. Synthesis of 1-azido-2,3,4,6-tetra-O-acetyl  $\beta$ -D-glucose and 1,2,3-triazole linked *N*-glycosides of pyrazolo-pyridine. **Chapter 6** will summarize and conclude the total thesis work.