

## Concluding Remarks

So, in this research work focused on “ **SYNTHESIS OF BIOACTIVE ORGANIC HETEROCYCLIC COMPOUNDS USING NOVEL CATALYSTS** ” is mainly on the development of efficient and environment benign methodologies for the new and efficient methodologies to synthesize synthons of bioactive compounds. **Chapter I** deals with a brief idea about bioactive compounds, precursors of bioactive compounds, idea of catalyst such as homogeneous and heterogeneous catalysts and from **Chapter II** to **Chapter IV** it describes about novel and greener synthetic routes towards one pot synthesis of various precursors of bio-active compounds. **Chapter II**, It deals with green synthetic approach towards one pot multi component synthesis of hexahydroquinoline and 9-arylhexahydroacridine-1,8-dione derivatives catalyzed by sulphonated rice husk. An efficient, straight forward, eco-friendly procedure to the synthesis of biologically active hexahydroquinoline derivatives and hexahydroacridine-1,8-diones have been designed using a novel bio-degradable heterogeneous catalyst, sulphonated rice-husk (SRH). Operational simplicity, greener reaction condition, reusability of the catalyst, excellent product yields (upto 98%) are the fundamental features of this procedure. **Chapter III**, describes about convenient and greener route towards one pot multi-component synthesis of substituted pyrano-dichromeneo-dione and chromeno-pyrido-pyrimidinone derivatives using rice husk based heterogeneous catalyst. An efficient pseudo three component synthetic method for 7-aryl/heteroaryl substituted pyranodichromene-6,8-dione and 7-aryl/heteroaryl substituted chromeno[4,3-*d*]pyrido[1,2-*a*]pyrimidinone derivatives using this greener catalyst

(SRH) under reasonable reaction condition. The operational simplicity, hassle free recovery of product and reusability of the catalyst with excellent product yield (up to 98%) are the fundamental features of this procedure. **In Chapter IV**, it deals with laboratory studies on one pot multi-component synthesis of a few varieties of heterocyclic compounds such as dihydro-dichromeno-pyridine-6,8-diones, tetrahydrotetrazolo[5,1-*b*]quinazolinones and 2,4-diaryl hexahydroquinoline-5-ones following the greener approach using rice husk based greener catalyst. A straight forward and sustainable synthetic procedures for these important class of bioactive heterocyclic compounds have been designed using a novel bio-degradable heterogeneous catalyst-sulphonated rice-husk (SRH). The process has advantageous in the sense of green catalysis as compared to other conventional homogenous solid acid catalyst and the operational simplicity, easy recovery of the product, avoidance, metal free technique and reusability of the catalyst along with excellent product yield (up to 98%) are the important and promising fundamental features of this procedure.

Henceforth, we were succeeded to synthesise different precursors of bioactive compounds in a novel and greener way. But major concerns regarding the synthesis are that some of the processes had complicated purification and lack of gram scale synthesis experiment. So, some works regarding this issues are underway in our laboratory and hope to minimize our limitations to make it best.