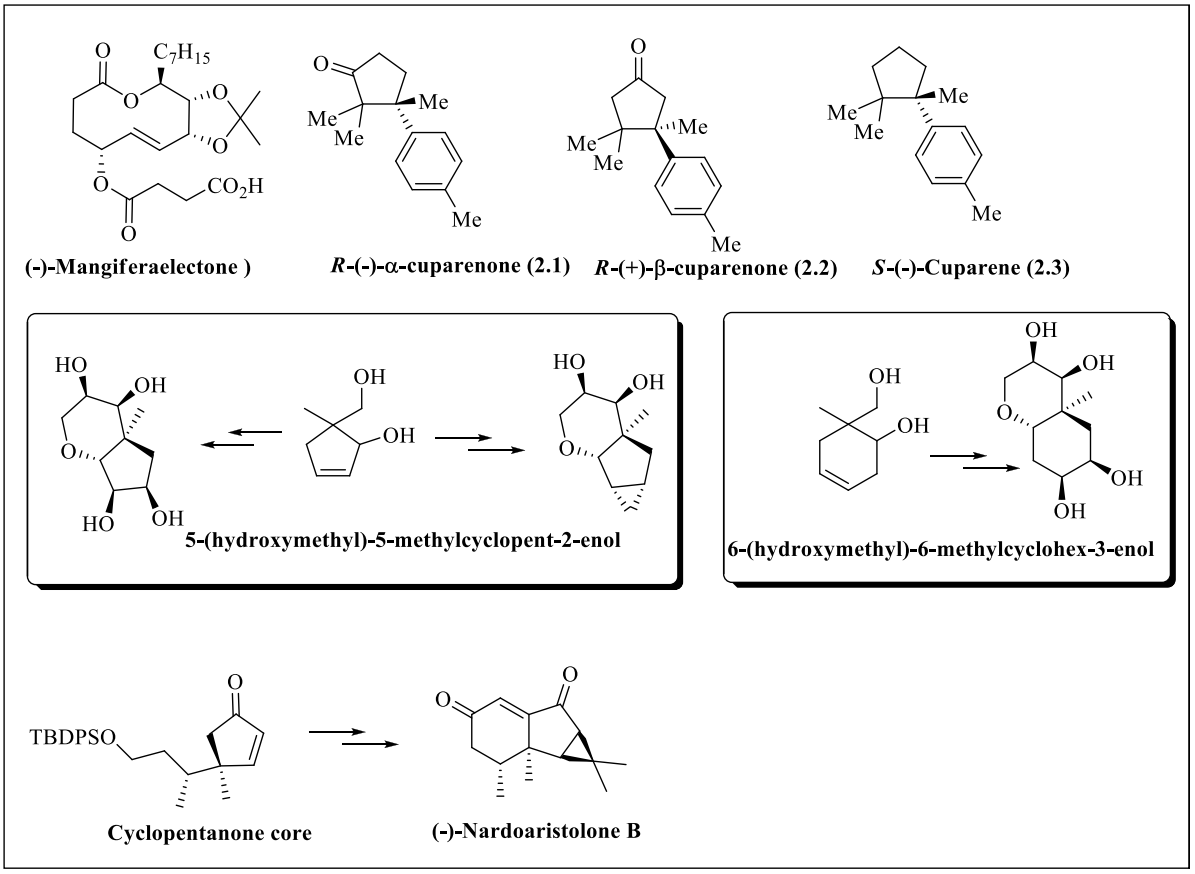
# ABSTRACT

## Thesis Title: Synthetic Studies Towards (-)-Mangiferaelactone, Cuparenoids, (-)-Nardoaristolone B and Small ring Carbocyclic Scaffolds

**Abstract:** In the first chapter of my thesis I have described asymmetric total synthesis of (-)-mangiferaelactone by adopting stereoselective RCM reaction at the penultimate stage of the target molecule. In the second chapter of my thesis asymmetric total synthesis of (*R*)-α-cuparenone, (*S*)-cuparene and formal synthesis of (*R*)-β-cuparenone are documented. Lewis acid mediated Meinwald rearrangement of an enantiopure epoxy compound was the key reaction employed to generate the quaternary stereocenter in the target molecules. In chapter third of the thesis enantiopure hydroxymethylated cycloalkenols bearing a quaternary stereocenter have been synthesized by a Pybox mediated enantioselective desymmetrization method. The synthesized cycloalkenols serve as starting precursors for the construction of several chiral small ring carbocyclic frameworks by a distinct functional group transformation. In the final chapter four of this thesis synthetic studies towards (-)-nardoaristolone B is described. In this synthetic journey an EED (enantioselective enzymatic desymmetrization) reaction, oxidative allylic transposition and late-stage RCM reaction were

employed to access the cyclopentenone core of naturally occurring (-)-nardoaristolone B.




***Key words*:** Asymmetric synthesis, Cuparenoids, Meinwald rearrangement, Ring closing metathesis, Enantioselective enzymatic desymmetrization, Oxidative allylic transposition, Total synthesis.