**Research Highlights**

1. Copper(II) complex with *N*-methylbenzimidazolyl schiff base ligand as catalyst has been prepared
2. 1,2-diketones, aldehyde and acid were synthesized using this catalyst heterogeneously in presence of t-BuOOH.
3. FT-IR, UV-Vis, Le-Bail fitting, CV, EPR were employed to characterize the catalyst
4. Changes in morphology effects the catalytic activity