

Summary

Title of Minor Project: Green Approach in Organic Transformations using Polyoxometalates as Catalyst

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In the proposed work we have planned to study the oxidative transformations in presence of polyoxometalates as well as acidic properties of the Keggin, Anderson and Waugh type compounds for fine chemical synthesis. It is also our purpose to support the selectivity in product formation achieved through a polyoxometalate moiety. The main objective of proposed work is development of environmentally benign catalytic methods that can be applied in fine chemical synthesis.

The proposed project work has been planned to complete within a period of 2.0 years. 12-tungstocobaltate(II) and Waugh type enneamolybdomanganate(IV) catalysts were prepared by reported literature method. They were further characterized by various spectroscopic techniques such as UV-Visible spectroscopy, AAS, IR etc.

The prepared catalyst Waugh type enneamolybdomanganate(IV) was successfully utilized in organic transformation. Waugh type enneamolybdomanganate(IV) was found to be an extremely good catalyst for **synthesis of amidoalkyl naphthols** by condensation of aromatic aldehyde, 2-naphthol and amide/urea. The reaction was carried out under solvent free condition at 110⁰C. The method is environmentally benign gives high yields of products after simple workup procedure in short reaction time. The catalyst used was recycled without loss in activity. The scope of the reaction was verified by taking various aldehydes and subjected to the reaction along with acetamide, benzamide and urea as their counterparts in the reaction.

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