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Highly selective oxidative coupling of amine using meso-MoO_3 catalytic system

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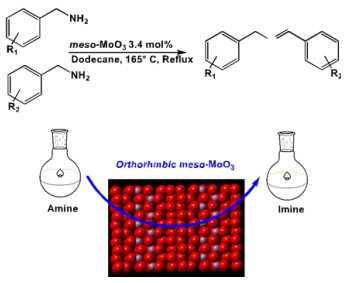
Oxidative coupling of amine to imine is very well-known process and has been extensively studied before. However, work on highly selective oxidative coupling is limited. In this work we have synthesized a molybdenum oxide mesoporous heterogeneous catalytic system. Through Brunauer–Emmett–Teller (BET) we confirmed that this material is mesoporous in nature. To check the crystallinity, X-ray diffraction was done and an orthorhombic cubic system was determined, which is different from commercially available molybdenum oxide which is monoclinic. Diffuse reflectance ultraviolet−visible spectra show that there is a blue shift in the spectra compared to commercially available molybdenum oxide.

Scanning electron microscopy (SEM) and Tunneling electron microscopy (TEM) were done to study the morphology. This catalytic system was then used for amine coupling to form imines. Under very simple reaction conditions selectivities, conversions, and turn over numbers were observed to be very high.



Biography

Shubhashish has obtained his BS-MS dual degree in Chemistry from Indian Institute of Science Education and Research, Bhopal. Then in 2016, he moved to USA, University of Connecticut for Doctoral studies in the Department of Chemistry under the supervision of Prof. Steven Suib. His work mostly focuses on catalysis and its application in organic transformation.

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