Nano catalysed green synthesis of some novel 3-alkylated indoles as potent antitubercular agents.

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ABSTRACT

A green multicomponent one pot synthesis of novel 2-(1H-indol-3-ylmethyl)-5,5-dimethyl-cyclohexane-1,3-diones in excellent yields was conveniently carried out in aqueous medium at room temperature over mpCuO as heterogeneous catalyst. The synthesised 3-alkylated indoles were characterised by FTIR, 1H NMR, 13C NMR and HRLCMS. The nanocatalyst was facially synthesised via a green sol–gel route and characterised by SEM, TEM, EDX, PXRD, BET and FTIR. The porous nanocatalyst can be recycled five times without significant drop in product yield. Docking studies against enoyl acyl carrier protein reductase predicts that the compounds bind at the active site with high binding affinity values. The compound (MIC, 15 µg/mL) shows comparable activity in reference to Isoniazid at the same concentrations against MT H37 Rv.

RESUME



PROF RATNESH DAS

Ratnesh Das is a Professor in the Department of Chemistry, Dr.Harisingh Gour Central University, Sagar, India. He commands a rich experience in teaching, and research of about 16 years during which he has supervised many sponsored research projects. His active research areas include Heterocyclic synthesis, medicinal chemistry , electro-organic chemistry, synthesis of nano-catalysts and green chemistry. He has authored about 60 research papers in peer-reviewed national and international journals and refereed conferences organized by professional societies around the world. He is an active member of several professional bodies and societies, both in India and abroad. He is a vibrant speaker and delivered many lectures in conferences, workshops, and seminars organized both in India and abroad.

Education

Ph.D.: 1997-2001 in Chemistry, Dr.Harisingh Gour Central University, Sagar, India.

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Sponsored research

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1. University Grants Commission.
2. SERB-DST.
3. MPCST