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Zahra Nadizadeh, M. Reza Naimi-Jamal, Leila Panahi



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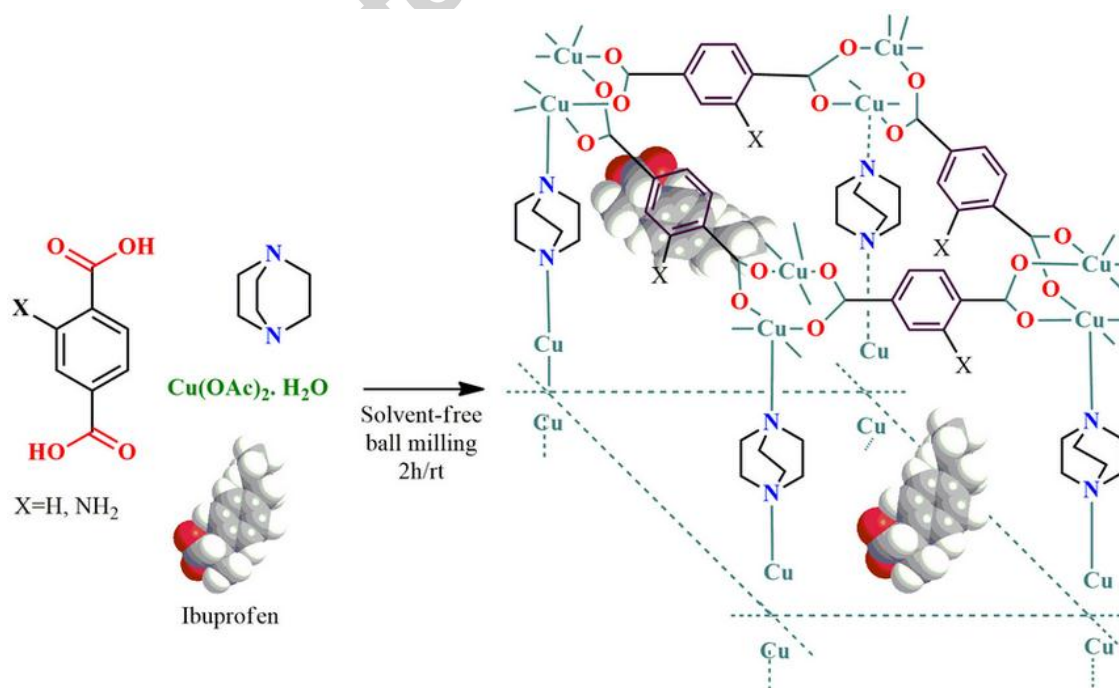
Research Laboratory of Green Organic Synthesis & Polymers, Department of Chemistry, Iran University of Science

*Corresponding author. Tel. /Fax: (+) 9821-77240289. naimi@iust.ac.ir (M. Reza Naimi-Jamal)

Abstract

In the present study, ibuprofen-loaded nano metal-organic frameworks (NMOFs) $\{\text{Cu}_2(1,4\text{-bdc})_2(\text{dabco})\}_n$ and $\{\text{Cu}_2(1,4\text{-bdc-NH}_2)_2(\text{dabco})\}_n$ (bdc=benzenedicarboxylic acid, and dabco=diazabicyclooctane) were synthesized by ball-milling at room temperature in 2 hours. The produced drug-loaded Cu-NMOFs were studied as ibuprofen drug delivery system and exhibited well-defined drug release behavior, exceptionally high drug loading capacities and the ability to entrap the model drug. The loading efficiency for ibuprofen was determined about 50.54 % and 50.27%, respectively. The drug release of NMOFs was also monitored, and all of the loaded drug was released in 1 day. The NMOFs were characterized by FT-IR spectroscopy, X-ray powder diffraction (XRPD), thermogravimetric analysis (TGA), SEM (scanning electron microscopy), transmission electron microscopy (TEM), energy-dispersive X-ray spectroscopy (EDS), inductively coupled plasma (ICP), UV-vis spectroscopy and N_2 adsorption porosimetry (BET & BJH).

Graphical Abstract



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