MULTIFUNCTIONAL MAGNETIC NANOCOMPOSITES FOR THE VALORIFICATION OF HMF TO DICARBOXYLIC ACIDS

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The catalytic transformation of renewable raw materials to high-value compounds such as dicarboxylic acids is one of the most attractive and challenging topics in nowadays heterogeneous catalysis. However, for such transformations two important drawbacks, *ie*, the catalysts separation and the high price of noble metals active phase, should have to be overcome. To overpass these, we focused our efforts for designing core-shell magnetite-based catalysts covered with various shells (ie, SiO_2, NbMCM) and cheap transition metals (ie, Mn, Co) active phases. The new developed multifunctional materials are magnetically separable and afford unexpected efficient catalytic systems for the HMF oxidation to 2,5-furandicarboxylic acid (FDCA) and succinic acid (SA), in wet oxidation (ie, water solvent and molecular oxygen) and catalytic oxygen transfer (ie, acetonitrile solvent and RO_2H donors) conditions [*ACS Sustain. Chem. Eng.* 6 (2018) 14292; *Appl. Catal. B: Environ. 278 (2020) 119309*]. The newly developed catalytic systems provide support for sustainable alternatives for the selective valorization of biomass.