عنوان مقاله:

AlFeO۳@SiO۲@SO۳H as a magnetic nanocatalyst for the synthesis of mono/bis-dihydropyrimidin-۲-ones and dihydropyridines as pharmaceutically active compounds

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خلاصه مقاله:

In this research, the preparation of a reusable AlFeO۳@SiO۲@SO۳H nanostructure as a perovskite-based magnetic nanomaterial is described. The structure of prepared AlFeO۳@SiO۲@SO۳H was characterized by FT-IR, XRD, FE-SEM, EDS, TGA, and VSM analyses. The prepared acidic hybrid nanocatalyst showed high thermal stability and used as an efficient magnetic nanocatalyst in the synthesis of ۳,۴-dihydropyrimidin-۲-one, and mono/bis ۱,۴-dihydropyridine derivatives as pharmaceutically active heterocycles under solvent free conditions. High efficiency of procedure, good yields, short reaction times, magnetic recovery and reusability of nanocatalyst, high thermal stability of catalyst, and environmentally benign conditions are highlights of this new protocol.In this research, the preparation of a reusable AlFeO۳@SiO۲@SO۳H nanostructure as a perovskite-based magnetic nanomaterial is described. The structure of prepared AlFeO۳@SiO۲@SO۳H was characterized by FT-IR, XRD, FE-SEM, EDS, TGA, and VSM analyses. The prepared acidic hybrid nanocatalyst showed high thermal stability and used as an efficient magnetic nanocatalyst in the synthesis of ۳,۴-dihydropyrimidin-۲-one, and mono/bis ۱,۴-dihydropyridine derivatives as pharmaceutically active heterocycles under solvent free conditions. High efficiency of procedure, good yields, short reaction times, magnetic recovery and reusability of nanocatalyst, high thermal stability of catalyst, and environmentally benign conditions are highlights of this new protocol.

کلمات کلیدی:

Magnetic nanocatalyst, Perovskite structure, Biginelli reaction, Hantzsch reaction, Pharmaceutical compounds, Green synthesis