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One-step synthesis of 2,5-dihydroxyterephthalic acid by the oxidation of *p*-xylene over M-MCM-41 (M=Fe, Fe/Cu, Cu) catalysts

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Abstract: one-step hydroxylation of C-H (sp^2) of aromatic ring synchronized with the oxidation of C-H (sp^3) of side-chain of *p*-xylene to 2,5-dihydroxyterephthalic acid was performed using M-MCM-41 (M = Fe, Fe/Cu, Cu) as the catalysts. Cu-MCM-41 (Cu:Si = 1:100) catalyst exhibited good selectivity (73.0%) of 2,5-dihydroxyterephthalic acid and conversion (21.7%) of *p*-xylene using acetic acid and acetonitrile (V:V = 3:7) as the solvents at 80 °C for 5 h. The possible mechanism of the

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