Article Abstract

Title:	Fabrication of iron-cerium mixed oxide: an efficient photocatalyst for dye degradation
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Abstract:	We report herein the fabrication of nanostructured and mesoporous iron-cerium mixed oxides for photocatalytic application. Phase, electronic structure and other properties of the products were characterized by both low-angle and wide-angle X-ray diffraction, diffuse reflectance spectroscopy, transmission electron microscopy, raman spectroscopy, X-ray photoelectron spectroscopy, and N_2 adsorption-desorption isotherm methods. Analytical results demonstrate that the catalyst is in the nano order and mesoporous in nature. These samples were screened for photocatalytic degradation of phenol, methylene blue (MB) and congo red (CR). About 13 % (phenol) and 93 % (MB) photodegradation were observed where as complete mineralization was obtained in case of CR. The reason for higher catalytic activity of 1:1 (Fe/Ce) sample is ascribed to their higher surface area, surface acidity which determines the active sites of the catalyst and accelerates the photocatalytic reaction.
Keywords:	Mixed oxide, photocatalyst, photodegradation.