

## عنوان مقاله:

The green synthesis of magnesium oxide nanoparticles in MFI type zeolite and its application as a photocatalyst

## محل انتشار:

مجله بین المللی فناوری نانو در آب و محیط زیست, دوره 5, شماره 3 (سال: 1399)

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## خلاصه مقاله:

Rice husk silica (RHS), an agriculture waste, was used as a silica source for MFI zeolite synthesis. Magnesium oxide (MgO) nanoparticles (NPs) were grown in zeolite substrates using a solid state reaction. The synthesized nanocomposite (NC) was characterized by X-ray diffraction (XRD), scanning electron microscopy (SEM), diffuse reflectance spectroscopy (DRS) and transmission electron microscopy (TEM) techniques. The BET results demonstrated specific surface area of MgO/RHS-MFI NC was smaller than RHS-MFI zeolite. It was founded that magnesium oxide NPs can be encapsulated into pores of RHS-MFI zeolite. The most principal objective of this research was evaluation of the capability of photocatalytic process of MgO/RHS-MFI zeolite heterogeneous nanocomposite over methylene blue (MB) dye. The results showed the MB degradation reached 80 % under UV light at pH=9. RHS-MFI affected the photocatalytic activity of magnesium oxide due to decrease of recombination rate of the electro-hole in magnesium oxide semiconductor. A plausible oxidation mechanism was also proposed

## کلمات کلیدی:

Rice husk silica, pollution, Environmental Nanotechnology, Green Chemistry

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1211441>

