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Photocatalytic Nanostructures Show Ability to Purify Wastewater

TEHRAN (FNA)- Iranian researchers from Shahid Chamran University of Ahvaz in association with Swedish researchers synthesized and studied laboratorial nanostructures with high efficiency in the elimination of dye pollutants from contaminated water.

The nanostructures have been produced through a cost-effective method.

Water pollution is a serious danger that threatens human societies nowadays, and many researchers carry out investigations on this problem. The use of nanostructures to eliminate various types of pollutants is a new approach being studied by many researchers. The aim of the research was to investigate and introduce nanostructures as photocatalysts with high efficiency in the detection and elimination of organic pollutants from water.

The research studied the possibility of application of zinc oxide–zinc sulfide core-shell nanoparticles as photocatalyst in degradation of dye pollutants. The sample in the test was an organic dye pollutant called Congo Red. The result of the photocatalyst performance was compared to that of zinc oxide nanoparticles without zinc sulfide coating.

Results showed that the synthesized nanostructures have higher efficiency in comparison with pure zinc oxide nanoparticles. In other words, the core-shell nanoparticles are better in the degradation of pollutants than zinc oxide nanoparticles under some circumstances.

The product has been produced through chemical methods at low temperature. Therefore, it requires lower cost of production. In addition, the crystalline phase is pure and free from impurity excess phase.

Results of the research have been published in *Ceramics International*, vol. 41, issue 5, Part B, 2015, pp. 7174-7184.