

عنوان مقاله:

Verifying the Role of Barium Oxide Nano Particles as a Photocatalyst in a Kinetic Survey upon Organic Dye Degradation Process

محل انتشار:

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خلاصه مقاله:

In this letter, Barium oxide (BaO) particles were successfully synthesized via sol-gel approach using Barium acetate dihydrate ($\text{Ba}(\text{CH}_3\text{COO})_2 \cdot 2\text{H}_2\text{O}$) and ammonia (NH_4OH) solution as precursors. In fact, here, in this research which is done, By adjusting the reaction parameters such as amount of ammonia and reaction time as well as complexing agent aluminium sulphate $\text{Al}_2(\text{SO}_4)_3$, BaO nano particles with different morphologies, that is, rodlike, ricelike and disklike could be synthesized. The effectiveness of BaO nano particles with different morphologies (rodlike, ricelike and disklike) on the photocatalytic activity has been studied. The results showed that rodlike BaO nano particles were the most effective in degrading the Rhodamine B (RhB) solution under the illumination of ultraviolet (UV) light. The rate constant was found to be first order, with rodlike particles the highest (0.06329 min^{-1}), followed by ricelike BaO nano particles (0.0431 min^{-1}) and disk-like BaO nano particles (0.02448 min^{-1}).

کلمات کلیدی:

Photocatalyst, kinetic survey, degradation, nano particles, dye

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