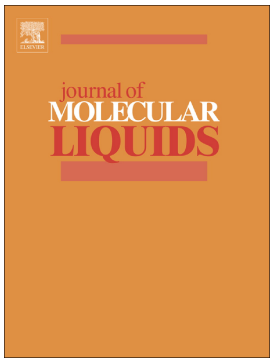


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# Fabrication and characterization of trimetallic nano-photocatalyst for remediation of ampicillin antibiotic

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***Abstract:***

In the present work, we synthesized La/Cu/Zr trimetallic nanoparticles (TNPs) by microwave method, which is applied as an effective nanophotocatalyst for the removal of a ampicillin antibiotic from aqueous media. The prepared nanomaterial was characterized by Fourier transform infrared (FTIR) spectroscopy, X-ray diffraction (XRD), scanning electron microscopy (SEM), and transmission electron microscopy (TEM). The experimental results showed that prepared nanoparticles have high photodegradation tendency for the removal of ampicillin antibiotic from the aqueous solution. The pseudo-first-order equation represents the better kinetics of the photocatalytic process. The feasibility of ampicillin antibiotic adsorption onto La/Cu/Zr TNPs was also studied and the results showed that the adsorption was supported with spontaneous photodegradation process. A photocatalytic degradation 86% of the antibiotic has been observed.

**Keywords:** Trimetallic nanoparticles; photodegradation; ampicillin antibiotic.