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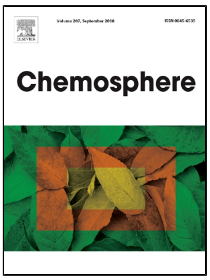

Influence of titanium dioxide nanoparticles on the toxicity of arsenate in *Nannochloropsis maritima*

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Influence of titanium dioxide nanoparticles on the toxicity of arsenate in *Nannochloropsis maritima*

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Abstract

Interest is growing in the role that nanoparticles play in modifying the biological effects of contaminants. This study aimed to determine whether nano-TiO_2 exhibited pronounced influence on arsenate (*As*(V)) toxicity levels to the marine microalgae *Nannochloropsis maritima*. We compared individual and combined toxicity levels of *As*(V) and nano-TiO_2 by assessing the inhibition percentages of algal growth. Compared to groups treated with *As*(V) alone, an EC_{50} of 53.0 mg/L decreased by 28.8% after the addition of nanoparticles. This enhanced toxicity was attributed to the inhibition of *As* methylation and the promotion of lipid peroxidation in the presence of nano-TiO_2. Additionally, transmission electron microscopy (TEM) and scanning electron microscopy (SEM) also showed that algal cells exhibited different degrees of