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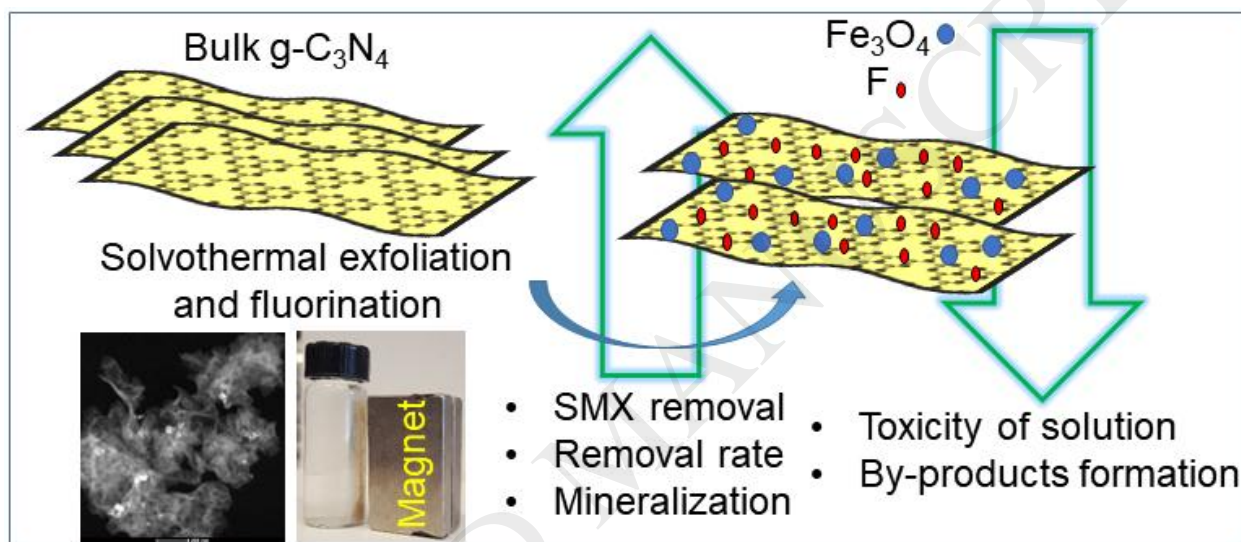
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Magnetic fluorinated mesoporous g-C₃N₄ for photocatalytic degradation of amoxicillin: transformation mechanism and toxicity assessment

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Graphical Abstract



Highlights

- Magnetic, porous fluorinated g-C₃N₄ was prepared by a facile hydrothermal method.
- Modified g-C₃N₄ showed photocatalytic activity under both UV and visible light.
- Mineralization, toxicity, by-products formation and kinetics of removal were evaluated.
- 10W UV lamp produced a higher catalytic activity compared to 500W visible lamp.
- Modified g-C₃N₄ photocatalysts exhibited excellent property and reusability.

Abstract

A novel fluorinated graphite carbon nitride photocatalyst with magnetic properties was synthesized by a facile hydrothermal method and used for degradation of amoxicillin (AMX) in water. Compared to the bulk g-C₃N₄, magnetic fluorinated Fe₃O₄/g-C₃N₄ (FeGF) with a high specific surface area (243 m².g⁻¹) and easy separation from aqueous solution by magnet, led to improved photocatalytic activity in terms of AMX removal and mineralization as well as detoxification of the solution. The results showed that in comparison with a 500 W visible lamp, using a UV lamp

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