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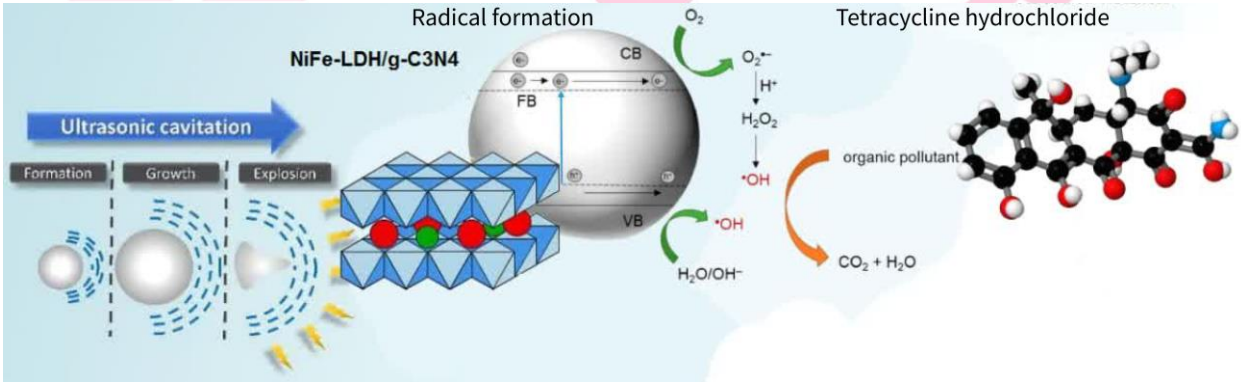
Preparation of Ni-Fe layered double hydroxide/ graphitic carbon nitride nanocomposite for enhanced sonocatalytic degradation of tetracycline hydrochloride

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Pharmaceutical compounds, including antibiotics, are a major source of micropollutants in water, leading to antibiotic-resistant pathogens and human health problems. Advanced Oxidation Processes (AOPs) [1] and sonochemistry are effective methods to remove these pollutants. Layered Double Hydroxide (LDH) [2] and graphitic carbon nitride (g-C_3N_4) are promising materials for adsorption and degradation of heavy metals and pollutants. However, g-C_3N_4 has low efficiency due to its structure and low utilization of visible light. To overcome this, researchers have loaded g-C_3N_4 [3] with metal atoms and non-metallic elements, and fabricated microstructures. The synthesis of NiFe_LDH/g-C_3N_4 double layered hydroxide nanocomposite shows potential for efficient sonocatalytic degradation of pharmaceutical pollutants. A NiFe-LDH/g-C_3N_4 nanocomposite was synthesized and used for sonocatalytic degradation of tetracycline from solution. The green conditions, simple catalyst preparation, and straightforward separation and recovery of the nanocomposite from the reaction mixture are the significant points of interest of this study.



Keywords: Graphitic carbon nitride, Layered double hydroxide, Sonocatalytic degradation, Tetracycline hydrochloride.

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