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Photocatalytic degradation of hydroquinone using HFO supported polymeric material

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ABSTRACT

Photocatalytic degradation of hydroquinone (HQ) has been investigated using polystyrene-divinyl benzene polymeric hybrid ion exchange (HIX) resin. The polymeric material was modified with iron cations and thermally treated at 60°C to produce nano FeOOH species (HFO) supported on the HIX polymer and denoted as Fe-HIX. The obtained material was characterized using X-ray diffraction (XRD) and scanning electron microscope (SEM). The data obtained for the degradation of HQ indicate that the addition of Fe-HIX material to the degraded HQ solution greatly enhance the rate of degradation in the presence of H_2O_2. Since the rate of degradation was found to be governed by the adsorption mechanism, so the adsorption isotherms were established in dark at different pH values and different doses from resin correlated with the obtained data of degradation.

Keywords: HQ; HFO; Photocatalytic degradation; HPLC; IC

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