

Ecotoxicological behavior of functionalized magnetic nanohybrids in water flea *Daphnia magna* and their recovered physicochemical properties

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ABSTRACT

Magnetic nanoremediation is quite advantageous due to its fast kinetic adsorption response, high specific surface area, catalytic response, and multifaceted surface adsorption mechanism [1]. However, their industrial application will require the spread of the magnetic nanohybrids into the environment. Specifically, water effluents are the main target for the magnetic nano-adsorbent final cycle. In that sense, ecotoxicological evaluation of nanomaterials' lines and derivatives is mandatory. The main worry is the possible source of contamination that these nanomaterials mean, despite their potential applications. In this work, the 24-hour lethal dose concentration (24h- LC_{50}) and morphological effects produced by the magnetic nanohybrids have been studied in the *Daphnia magna* (*D. magna*) biomarker. For that purpose, culture optimization was carried out first. Then, the 24h- LC_{50} values were determined for various magnetic nanohybrids and compared to other parent systems in the literature [1,2]. The morphological damage was compared to the negative control for duplicate experiments, and the statistical significance value was also evaluated. In addition, the after-exposure properties of magnetic nanohybrids will be discussed by means of various physicochemical techniques [3], and it has been observed that their entire featured properties remain unchanged.

References

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