

Raquel F. Pupo Nogueira



Description of LaPOA scientific activities

Prof. Dr. Raquel F. Pupo Nogueira, associate professor of the São Paulo State University (UNESP) and coordinator of the Laboratory of Advanced Oxidation Processes (LaPOA). The main focus of LaPOA is to investigate the degradation of organic contaminants present in water and wastewaters mainly by photo-Fenton process under solar irradiation, aiming minimization of environmental contamination. Different classes of contaminants have been studied such as chlorophenols, pesticides, dyes and pharmaceutical compounds, with emphasis on antibiotics. More recently, the heterogeneous Fenton process, applying iron containing materials such as iron minerals and iron mining residues, is investigated for the degradation of antibiotics. The studies involve the synthesis of iron materials, the characterization and application on degradation of pharmaceutical compounds present in wastewaters.

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Recent publications

1. Costa-Serge, N. M., Gonçalves, R. G. L.; Rojas-Mantilla, H. D.; Santilli, C. V.; Hammer, P.; Nogueira, R. F. P. Fenton-like degradation of sulfathiazole using copper-modified MgFe-CO₃ layered double hydroxide. *J. Hazard. Mat.*, 413, 125388, 2021.
2. Rojas-Mantilla, H. D.; Ayala-Duran, S. C.; Nogueira, R. F. P. Nontronite mineral clay NAu-2 as support for hematite applied as catalyst for heterogeneous photo-Fenton processes. *Chemosphere*, 277, 130258, 2021.
3. Lima, A. S.; Nogueira, R. F. P. Cerium-modified iron oxides applied as catalysts in the heterogeneous Fenton system for degradation of cephalexin. *Environ. Sci. Poll. Res.*, 2021.
4. Emídio, E. S.; Hammer, P.; Nogueira, R. F. P. Simultaneous degradation of the anticancer drugs 5-fluorouracil and cyclophosphamide using a heterogeneous photo-Fenton process based on copper-containing magnetites (Fe_{3-x}Cu_xO₄). *Chemosphere*, 241, 124990, 2020.

5. Ayala-Durán, S.; Hammer, P.; Nogueira, R. F. P. Surface composition and catalytic activity of an iron mining residue for simultaneous degradation of sulfonamide antibiotics. *Environ. Sci. Poll. Res.*, 27, 1710–1720, 2020.
6. Lima, K. V. L.; Emídio, E. S.; Nogueira, R. F. P.; Vasconcelos, N. S. L. S.; Araújo, A. B. Application of a stable Ag/TiO₂ film in the simultaneous photodegradation of hormones. *J. Chem. Technol. Biotechnol.*, 95, 2656-2663, 2020.
7. Rojas-Mantilla, H. D.; Ayala-Durán, S. C.; Nogueira, R. F. P. Parameters affecting LED photoreactor efficiency in a heterogeneous photo-Fenton process using iron mining residue as catalyst. *J. Environ. Sci. Health, Part A*, 54, 1277-1286, 2019.
8. Perini, J. A. L.; Tonneti, A. L.; Vidal, C.; Montagner, C. C.; Nogueira, R. F. P. Simultaneous degradation of ciprofloxacin, amoxicillin, sulfathiazole and sulfamethazine, and disinfection of hospital effluent after biological treatment via photo-Fenton process under ultraviolet germicidal irradiation. *Appl. Catal. B: Environ.*, 224, 761-771, 2018.