Title: Copper removal from aqueous solutions using a polyelectrolyte derived from sunflower oil: Physico-chemical aspects

Authors: Quelen Bulow Reiznautt, Irene Teresinha Santos Garcia, Bruna Girelli Furlanetto, Luiz Mario Angeloni, Dimitrios Samios

PII: S2213-3437(17)30540-7
DOI: https://doi.org/10.1016/j.jece.2017.10.039
Reference: JECE 1949

To appear in:

Received date: 16-6-2017
Revised date: 6-10-2017
Accepted date: 17-10-2017

Please cite this article as: Quelen Bulow Reiznautt, Irene Teresinha Santos Garcia, Bruna Girelli Furlanetto, Luiz Mario Angeloni, Dimitrios Samios, Copper removal from aqueous solutions using a polyelectrolyte derived from sunflower oil: Physico-chemical aspects, Journal of Environmental Chemical Engineering https://doi.org/10.1016/j.jece.2017.10.039

Copper removal from aqueous solutions using a polyelectrolyte derived from sunflower oil: Physico-chemical aspects

Quelen Bulow Reiznautt, Irene Teresinha Santos Garcia, Bruna Girelli Furlanetto, Luiz Mario Angeloni and Dimitrios Samios*

Physical Chemistry Department, Institute of Chemistry, Federal University of Rio Grande do Sul, Brazil, e-mail dsamios@iq.ufrgs.br

Corresponding author: Dimitrios Samios

Physical Chemistry Department, Institute of Chemistry, Federal University of Rio Grande do Sul
Av. Bento Gonçalves, 9500, Porto Alegre/RS, CEP 91501-970, Brazil
Fax: 55 51 3308 7304. Phone: 5551 33086290.
e-mail: dsamios@iq.ufrgs.br

Highlights

- A safer and cleaner technology to remove copper ions from aqueous media is described.
- Polyelectrolytes synthesized from renewable raw materials are used for Cu ion removal.
- The surfactants obtained from sunflower oil in aqueous media are characterized.
- The copper ion/polyelectrolyte interaction for is studied for wastewater recovery.
-

Abstract

Interactions between polymers and different metal ions represent an interesting field of study due their potential use for wastewater remediation. In turn, polymers with technological applications can be obtained from renewable raw materials. In this work, polyesters weighing 2822 Da were obtained from the reaction of an epoxidized biodiesel from sunflower oil. The polyesters were reacted with aqueous sodium hydroxide solutions to obtain polyelectrolytes. The polyelectrolytes were characterized with respect to their structure by Nuclear Magnetic Resonance Spectroscopy, Infrared Fourier Transform Spectroscopy