## Accepted Manuscript

Title: Chitosan-Edible Oil Based Materials as Upgraded Adsorbents for Textile Dyes

Authors: Clayane Carvalho dos Santos, Rodolpho Mouta, Manoel Carvalho Castro Junior, Sirlane Aparecida Abreu Santana, Hildo Antonio dos Santos Silva, Cícero Wellington Brito Bezerra

PII: S0144-8617(17)31109-8

DOI: https://doi.org/10.1016/j.carbpol.2017.09.076

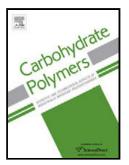
Reference: CARP 12821

To appear in:

Received date: 22-6-2017 Revised date: 7-9-2017 Accepted date: 24-9-2017

Please cite this article as: dos Santos, Clayane Carvalho., Mouta, Rodolpho., Junior, Manoel Carvalho Castro., Santana, Sirlane Aparecida Abreu., Silva, Hildo Antonio dos Santos., & Bezerra, Cícero Wellington Brito., Chitosan-Edible Oil Based Materials as Upgraded Adsorbents for Textile Dyes. *Carbohydrate Polymers* https://doi.org/10.1016/j.carbpol.2017.09.076

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



## ACCEPTED MANUSCRIPT

#### Chitosan-Edible Oil Based Materials as Upgraded Adsorbents for Textile Dyes

Clayane Carvalho dos Santos<sup>a</sup>, Rodolpho Mouta<sup>b</sup>, Manoel Carvalho Castro Junior<sup>b</sup>, Sirlane Aparecida Abreu Santana<sup>a</sup>, Hildo Antonio dos Santos Silva<sup>a</sup>, Cícero Wellington Brito Bezerra<sup>a\*</sup>

<sup>a</sup>Department of Chemistry /CCET, Federal University of Maranhão, Av. dos Portugueses, 1966, Campus do Bacanga, 65080-805, São Luís, MA, Brazil <sup>b</sup>Department of Physics /CCET, Federal University of Maranhão, Av. dos Portugueses, 1966, Campus do Bacanga, 65080-805, São Luís, MA, Brazil

\*e-mail: cwb.bezerra@ufma.br phone: +55 98 32728228

### Highlights

- A method to prepare conjugated chitosan-oil materials is presented and discussed.
- The novel materials were properly characterized and applied as adsorbents
- Modifications improved acidic conditions stability and extent of dyes removal.

#### Abstract

Biopolymer chitosan is a low cost, abundant, environmentally friendly, very selective and efficient anionic dyes adsorbent, being a promising material for large-scale removal of dyes from wastewater. However, raw chitosan (CS) is an ineffective cationic dyes adsorbent and its performance is pH sensitive, thus, CS modifications that address these issues need to be developed. Here, we report the preparation and characterization of two new CS modifications using edible oils (soybean oil or babassu oil), and their adsorption performance for two dyes, one anionic (remazol red, RR) and one cationic (methylene blue, MB). Both modifications extended the pH range of RR adsorption. The babassu oil modification increased adsorption capacity of the cationic dye MB, whereas the soybean oil modification increased that of RR. Such improvements demonstrate the potential of these two new CS modifications as adsorbent candidates for controlling dyes pollution in effluents.

### Download English Version:

# https://daneshyari.com/en/article/5156370

Download Persian Version:

https://daneshyari.com/article/5156370

<u>Daneshyari.com</u>