



II EPNAT

Encontro de Polímeros Naturais

Meeting on Natural Polymers

21 a 23 de outubro de 2020.

Organização:



The 2nd Meeting on Natural Polymers – EPNAT brought together entrepreneurs, undergrad and graduate students, postdocs, and professors to discuss emerging research challenges and strategies for different applications of natural polymers. The II EPNAT was chaired by scholars from leading universities in Brazil: University of Araraquara (UNIARA), University of São Paulo USP–FZEA, Pirassununga, University of Campinas (UNICAMP), São Paulo State University (UNESP, Araraquara & Ilha Solteira campuses), Federal University of São Paulo (UNIFESP, Diadema campus), and Federal University of Piauí (UFPI).

The event took place virtually in 2020, gathering 1013 participants, 173 abstracts submitted and a strong international engagement, as the lectures given by top-notch speakers, which can you watch on-demand at <https://www.youtube.com/watch?v=P5ylh2UrZpQ&t=4673s>.



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PREPARATION, CHARACTERIZATION AND DISSOCIATION STUDY OF A SALT FROM NAPROXEN AND CHITOSAN

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Area: () Food and Agriculture (X) Medical and Pharmaceutical () Multifunctional Applications

Ionic interaction became an attractive issue in the study of dissociation of matrixes formed by chitosan (CTS) and other molecules, such as drugs that are sensitive to pH changes. Optimization of reactional conditions was performed in order to prepare salts from naproxen (NAP) and CTS, as well as NAP salt CTS crosslinked with epichlorohydrin (EP), named CEPN. The resulting salts (CN) and (CEPN) with the best reaction yield was used to study the anti-inflammatory-CTS dissociation equilibrium. The salts were characterized by ¹³C NMR solid state, FTIR, diffuse reflectance spectroscopy, XRD and thermal analytical techniques: TG/DTG/DTA and DSC. The higher yield in preparation of CN and CEPN salts was reached under the following reaction conditions: 24 h under constant stirring at 60 °C in the molar ratio of 1 mol of CTS to 1.05 mol of NAP. This reaction product was named CN1 and CEPN. The degree of substitution () were 19.1% for CN1 and 3.57 % for CEPN, both determined by ¹³C NMR. In the FTIR spectra bands were observed corresponding to the formation of salts. In the reflectance spectrum three bands were observed for the absorption of the chromophore groups present in the salts. In the XRD, the products presented changes in the crystallinity index when compared with CTS. The TG/DTG/DTA curves revealed changes in the thermal behavior of CN1 in relation to CTS. The equilibrium of dissociation of the CN1 and CEPN salts, at pH 2.00 and 7.00, were investigated by HPLC. It was observed that at pH 2.00 for CN1, the salt dissociation occurs more rapidly when compared to pH 7.00. For CEPN, the dissociation at pH 2.00 occurred slower than at pH 7.00. The constants of partition were also calculated from the respective dissociation curves.

Keywords: Chitosan; Naproxen; Chitosan Salts.