XXI B-MRS Meeting

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October 1st to 5th

SBPMat B-MRS BRAZILIAN MATERIA RESEARCH SOCIET

Maceió-AL, Braz

October 1st to 5th, 2023

Booklet | Presentation Schedule | Mobile App

until ~~April 17th~~ May 1st	~~June 00th~~ June 25th	until ~~June 19th~~ June 29nd	~~June 26th~~ July 07th	until July 26th
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Welcome

The **Brazilian Materials Research Society (B-MRS)** and the
Committee of the XXI B-MRS Meeting invite the worldwide
community of materials research to attend the 2023 Meetir
be held at the Ruth Cardoso Cultural and Exhibition Center
Maceió-Alagoas, Brazil, October 1st to 5th, 2023.

This traditional forum is dedicated to recent advances and
perspectives in materials science and related technologies.
be an excellent opportunity to bring together scientists, eng
and students from academy and industry to discuss the sta
art of Materials Science discoveries and perspectives.

Maceió is one of the main Brazilian capitals that has receiv
tourists mainly due to the receptivity of its inhabitants, the
beaches with warm waters and extraordinary gastronomy. Y
very well welcome to Maceió. Do not miss this opportunity.

Organizing Committe

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Analysis of the influence of chitosan molar mass on quaternization process

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Chitosan is one of the most studied biopolymers in the world, especially due to its cationic character and biological properties. However, chitosan is only soluble on a limited acidic pH range. To improve chitosan solubility in a broader pH range and increase its applications, chemical modifications can be performed, as the quaternization process, where functional groups are introduced by substitution or addition in organic compounds [1]. It is known that chitosan molar mass affects the crystallinity, solubility, permeability and mobility of the molecular chains, however, there is a lack of studies in the literature that analyzed the influence of chitosan molar mass on the quaternization process and on the final product properties. In this study, chitosan quaternization with GTMAC was assessed with chitosan of three different molar masses and analyzed regarding quaternization degree, deacetylation degree and thermal stability. It was possible to observe that the degree of quaternization increases with the increase in chitosan molar mass, while the acetylation degree increases in a similar manner when compared to the non-quaternized chitosan, regardless the chitosan molar mass. Regarding the thermogravimetry, the peaks related to thermal degradation were observed on a lower temperature for the quaternized chitosan, and increasing chitosan molar mass decreased the temperature of thermal degradation. In conclusion, it was possible to observe that the molar mass is a key factor on chitosan quaternization and should be taken into account on studies and new technologies applied to chitosan materials.

Acknowledgment: This work was supported by CAPES.

References: [1]. Pathak, K.; Misra, S. K.; Sehgal, A.; Singh, S.; Bungau, S.; Najda, A.; Gruszecki, R.; Behl, T. Polymers (Basel) 2021, 13, 1–31.