

XXI B-MRS Meeting

- Home
- Symposia
- Registration
- Submission
- Program
- Student Awards
- Accommodation & Travel
- Sponsors & Exhibitors
- B-MRS Meetings
- Contact



Maceió-AL, Brazil
October 1st to 5th, 2023

- Booklet
- Presentation
Schedule
- Mobile
App

until April 17 th May 1 st	June 06 th June 25 th	until June 19 th June 29 nd	June 26 th July 07 th	until July 26 th
Submission of Abstracts	Abstract status notification	Submission of Revised Abstract	Final Abstract Notification	Submission for Student Awards

Poster Printing Service

Do you want to print your poster at the Conference?

Conexão Montagens e Eventos can do it!

Before the conference: the file (in pdf format) should be sent by email until September, 28th to - sinalizacaoconexao@gmail.com

Amount R\$ 70.00 - payment via PIX. The poster will be available at the Poster Help Desk at the Conference on Monday morning, 2nd - 9am.

Request for resources from FAPESP

Researchers from the State of São Paulo (BR) might be eligible for financial support from FAPESP. More information in the link below.

[Click here to access](#)

- Home
- Symposia
- Registration
- Submission
- Program
- Student Awards
- Accommodation & Travel
- Sponsors & Exhibitors
- B-MRS Meetings
- Contact

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 Meeting to 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. It will be an excellent opportunity to bring together scientists, engineers and students from academy and industry to discuss the state of the art of Materials Science discoveries and perspectives.

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

Organizing Committee



Carlos Jacinto da Silva
Chair

Institute of Physics,
Universidade Federal de Alagoas



Mário Roberto Meneghetti
Chair

Institute of Chemistry and
Biotechnology, Universidade
Federal de Alagoas

Films based on potato starch modified by dry heating treatment; one green alternative for properties improvement

Pedro Augusto Invernizzi Sponchiado¹, Milena Martelli Tosi², Delia Blácido¹, Pietro Ciancaglini¹, Ana Paula Ramos¹, Bianca Chieregato Maniglia³

¹Universidade de São Paulo (Química - FFCLRP/USP) , ²Universidade de São Paulo (Engenharia de Alimentos - FZEA/USP) , ³Universidade de São Paulo (Físico-Química - IQSC)

e-mail: pedrosponchiado@usp.br

One eco-friendly technology that is gaining attention is dry heating treatment (DHT), which has the potential to modify both the size and charge of starch molecules [1]. This research explores the use of DHT-modified potato starch, produced at varying levels (130°C for 1, 2, and 4 hours, called DHT_1h, DHT_2h, and DHT_4h), to create biodegradable films using the casting technique, along with glycerol as a plasticizer and water as a solvent. The films were analyzed for their mechanical, thermal, biodegradability, wettability, morphology, and crystallinity properties. The modified membranes exhibited a more uniform morphology compared to those produced with non-modified starch. The films based on DHT-modified potato starch displayed higher tensile strength (Native: 5 MPa and DHT_2h: 25 MPa), Young's modulus (Native: 10 MPa and DHT_2h: 1000 MPa), thermal stability (Tg of Native: 50 oC MPa and Tg of DHT_2h: 59 oC), and relative crystallinity (Native: 12% and DHT_2h: 23%), while the elongation at break was lower (Native: 20% MPa and DHT_2h: 5%) than that of the non-modified starch. Moreover, there was one reduction of biodegradability rate (~ 10%) and hydrophilicity (~ 20%) of the films with an increase in the dry heating treatment time, which can be interesting from a commercial standpoint. In summary, DHT-modified starch represents a promising alternative for the production of packaging materials.

Acknowledgments:

FAPESP, Brazil (2020/08727-0) and (CNPq, Brazil) (162334/2021-4)

References:

[1] MANIGLIA et al. Current Opinion in Food Science, v. 40, p. 72-80, 2021