Iguassu Falls

# XX Brazil MRS Meeting 2022

September 25th to 29th

20 Anos SBPMat Brazil-MRS

Brazilian Materials Research Society

Excelência em Ciência e Tecnologia de Materiais

**Where**

**Rafain Palace Hotel in Iguassu Falls Paraná - Brazil**

**When**

**Sunday to Thursday 25-29 September**

Proceedings

Booklet

Presentation Schedule

Mobile App

| | | | | |
|---|---|---|---|---|
| ~~**April 22nd**~~ **May 15th FINAL CALL** Submission of Abstracts | **June 20th** Abstract status notification | **July 04th** Submission of Revised Abstract | **July 11th** Final Abstract Notification | **July 4th** to **August 1st** Submission for Student Awards |

Access the registration and submissions system

**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:

Click here to access

## Welcome

In the year we celebrate the 20th anniversary of The Brazilian Materials Research Society (SBPMat) we also celebrate the 20th anniversary of the Conference and this time, after 2 years without meeting, the event will be **IN-PERSON**.

The Brazilian Materials Research Society (B-MRS) and the Organizing Committee of the XX Brazilian MRS meeting invite the worldwide community of materials research to attend the 2022 Meeting that will be held at the Rafain Palace Hotel in Iguassu Falls, Paraná, from 25th to 29th September. This traditional forum will be dedicated to recent advances and perspectives in materials science and technology. This will be an opportunity to bring together scientists, engineers, and students from academy and industry discussing state-of-the art Materials Science discoveries and perspectives.

# Physicochemical Characterization of Raw Zein Extracted by the New Chemical Process

Sergio Akinobu Yoshioka[1], Antonio Ambrosio Garcia[2], Bruno Garcia de Oliveira Breda[3], Maria Eduarda Jacinto[4], Wilson Oshiro[5], Francisco Vieira dos Santos[6], Márcia Cristina Branciforti[2]

[1]Instituto de Química de São Carlos -Universidade de São Paulo (*Grupo de Bioquímica e Biomateriais - Depto de Química e Fis.Molecular*) , [2]Escola de Engenharia de São Carlos - Universidade de São Paulo (*Depto de Materiais*) , [3]Instituto de Química de São Carlos - Universidade de São Paulo (*Depto de Química e Fis.Molecular*) , [4]Instituto de Química de São Carlos - Universidade de São Paulo ( *Depto de Química e Fis.Molecular*) , [5]Autônomo (*Autônomo*) , [6]Universidade de Sao Paulo

*e-mail: sergioy@iqsc.usp.br*

## Physicochemical Characterization of Raw Zein Extracted by the New Chemical Process

Antonio Ambrosio Garcia[1], Bruno G. de Oliveira Breda[2], Maria Eduarda Jacinto[2], Francisco Vieira dos Santos[1], Wilson Oshiro[3], Sergio A. Yoshioka[2], Márcia C. Bracinforti[1]

[1]Departamento de Materiais- Escola de Engenharia de São Carlos- USP, [2]Grupo de Bioquímica e Biomateriais- Instituto de Química de São Carlos - USP, [3]Engenheiro Químico Autônomo[3]

*e-mail: antonioag99@usp.br*

Zein is a corn prolamine (rich in poline, leucine, and glutamine aminoacids) and soluble in hydroethanolic solutions, representing about 8% of corn kernel, however the extractions made in the corn gluten meal, CGM60, from corn starch factories reach a maximum at 10%(m/m). This new process developed in the Biochemistry and Biomaterials group can extract about 35%, but with impurities (carotenoids), and no corrosive process (different other process[1]). Unfortunately, Aldrich zein with purity of >95% is very expensive (~R$1,600.00/kg), so in Brazil we can´t use it to produce bioplastics or biomaterials. The results of zein extracted with this new process presented TGA, electrophoretic profile and DSC data similar to Aldrich zein, however it had much carotenoids compounds (~10%). Maybe we can to make some applications in the forms of straws, swabs, filaments of 3D printer, fertilizers coating or hollow for progesterone release to control the heat of cows, which these carotenoids presence don´t matter, and are being tested by the group's collaborators.

References

Acknowledgements:

Ingredion Inc.(Mogi Guaçú-SP) by CGM60 supplier.

References:

[1] Yoshioka, S.A. Processo de extração etanólica de prolaminas de resíduos dos grãos de cereais em meio etanólico/aquoso ácido ou básico. BR 10 2020 009163 8 (08/05/2020).