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### I. PUBLICACIONES (2015 – presente)

#### *Publicaciones en revistas indexadas (ISI)*

1. Silva, J.B., Vieira, S.R., Pessôa, L.C., Santana, J.S., Lemos, P.V.F., Souza, C.O., Cardoso, L.G., Jesus Assis, D.J., **Mussagy, C.U.**, Santos-Ebinuma, V. 2023. Impact of ionic liquid's cation alkyl chain length and reaction time on cellulose nanocrystals preparation. *Carbohydrate Polymer Technologies and Applications*, 100390. Q1.
2. Silva, P.G., **Mussagy, C.U.**, Lima, C.A., Santos-Ebinuma, V., Burkert, J. Santos, L.O. 2023. Sustainable approach to recover  $\beta$ -carotene and astaxanthin from *Phaffia rhodozyma* grown in a stirred-tank bioreactor under the influence of magnetic fields. *Bioresource Technology*. 390: 129906.Q1.
3. **Mussagy, C.U.**, Farias, F., Sasaki, J.C., Scontri, M., Picheli, F., Santos-Ebinuma, V., de Azeredo, H., Pessoa, Jr.A., Herculano, R. 2023. Eutectic solvent-based bioactive films functionalized with microbial astaxanthin extends shelf life of fresh strawberries. *Materials Today Chemistry*, 33: 101721. Q1.
4. Ribeiro, R., Picao, B., Goncalves, D., Scontri, M., Mazziere, V., **Mussagy, C.U.**, Rhaghavan, V., Astudillo, C., Cordova, A., Cerri, M., Tambourgi, E. 2023. Synergistic effects of stirring and aeration rate on carotenoid production in yeast *Rhodotorula toruloides* CCT 7815 envisioning their application as soap additives. *Fermentation*, 9: 828. Q2.
5. **Mussagy, C.U.**, Oshiro, A., Farias, F.O., Haddad, F., Santos, J., Scarim, C., Herculano, R.D., Pessoa, Jr.A., Santos-Ebinuma, V.C. 2023. Emerging role of bio-based solvents mixtures to increase the solubility and recovery of carotenoids from processed carrot wastes for potential skin care application. *Industrial Crops and Products*, 205: 117436. Q1.

6. Farias, F., Toledo, A., **Mussagy, C.U.**, Ferreira, R., Santos-Ebinuma, V.C., Batista, E., Meirelles, A.J.A. 2023. Exploring the Potential of Naturally-Derived Ionic Liquids for Sustainable Vegetable Oil Deacidification. *Food and Bioproducts Processing*, 141: 140–149. Q2.
7. **Mussagy, C.U.**, Santos, A., Militão, G., Oliveira, J.C., Umbuzeiro, G., Peixoto, G., Pessoa Jr,A., Santos-Ebinuma, V.C. 2023. *Phaffia rhodozyma* biorefinery: A sustainable pathway to obtain natural pigments and production of methane biogas as renewable fuel. *Chemical Engineering Journal*, 473: 145350. Q1.
8. Lima, CA., Bento, H.B.S., Picheli, F., Paz-Cedeno, F.R., **Mussagy, C.U.**, Masarin, F., Torres-Acosta, M., Santos-Ebinuma, V.C. 2023. Process development and techno-economic analysis of co- production of colorants and enzymes valuing agro-industrial citrus waste. *Sustainable Chemistry and Pharmacy*, 35: 101204. Q1.
9. Abdalla, G., **Mussagy, C.U.**, Brasil, G.S.P., Scontri, M., Sasaki, J.C., Su, Y., Bebber, C., Rocha, R.R., Abreu, A.P.S., Goncalves, R.P., Burd, B., Pacheco, M., Romeira, K., Picheli, F., Guerra, N.B., Farhadi, N., Floriano, J.F., Forster, S., He, S., Nguyen, H.T., Herculano, R.D. 2023. Eco-sustainable coatings based on chitosan, pectin, and lemon essential oil nanoemulsion and their effect on strawberry preservation. *International Journal of Biological Macromolecules*, 249: 126016. Q1.
10. Ueda, K.M., Leal, F.C., Farias, F.O., **Mussagy, C.U.**, Igarashi-Mafra, L., Mafra, M. 2023. Enhancing the carotenoid recovery from *Eugenia uniflora* L. pulp: A comparative study of Supramolecular Solvents, Ionic Liquids, and Deep Eutectic Solvents. *Separation and Purification Technology*, 324: 124632. Q1.
11. **Mussagy, C.**, Pereira, J., Santos, V., Pessoa, A., Raghavan, V. 2023. Insights into using green and unconventional technologies to recover natural astaxanthin from microbial biomass. *Critical Reviews in Food Science and Nutrition*, 63: 11211-11225. Q1.
12. **Mussagy, C.U.**, Ribeiro, H., Pereira, J.F.B. 2023. *Rhodotorula* sp. as a cell factory for production of valuable biomolecules. *Advances in Applied Microbiology*, 123: 133-156. Q1.
13. **Mussagy, C.U.**, Kot, A.M., Dufosse, L., Goncalves, C., Pereira, J.F.B., Santos-Ebinuma, V., Raghavan, V., Pessoa, Jr.A. 2023. Microbial astaxanthin: from bioprocessing to the market recognition. *Applied Microbiology and Biotechnology*, 107: 4199–4215. Q1.
14. Herculano, R.D., Santos, T.O., Barros, N.R., Brasil, G.S., Scontri, M., Carvalho, B.G., Mecwan, M., Farhadi, N., Kawakita, S., Perego, C.H.,

- Carvalho, FA., Gonzaga dos Santos, A., Guerra, N.B., Floriano, J.F., **Mussagy, C.**, Tirpáková, Z., Khorsandi, D., Peirsman, A., Nguyen, H.T., Gomez, A., Jucaud, V. 2023. Aloe vera-loaded natural rubber latex dressing as a potential complementary treatment for psoriasis. *International Journal of Biological Macromolecules*, 242: 124779. Q1.
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17. **Mussagy, C.**, Pereira, J.F.B., Dufosse, L. 2023. Astaxanthin production using *Paracoccus carotinifaciens*: a way forward?. *Trends in Biotechnology*, 41(8): 996-999. Q1.
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19. **Mussagy, C.**, Dufossé, L., 2023. A review of natural astaxanthin production in a circular bioeconomy context using *Paracoccus carotinifaciens*. *Bioresource Technology*, 369: 128499. Q1.
20. Otaviano, C.A., **Mussagy, C.**, Paz-Cedeno, F.R., Pereira, J.R.F., Masarin, F. 2023. Hydrothermal pretreatment of Eucalyptus by-product and refining of xylooligosaccharides from hemicellulosic hydrolysate. *Separation and Purification Technology*, 306: 122520. Q1.
21. Burd, B.S., **Mussagy, C.**, Singulani, J.L., Tanaka, J.L., Scontri, M., Brasil, G., Brizuela, N., Herculano, R.D. 2023. *Galleria mellonella* Larvae as an Alternative to Low-Density Polyethylene and Polystyrene Biodegradation. *Journal of Polymers and the Environment*, 31: 1232–1241. Q1.
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23. **Mussagy, C.**, Remonatto, D., Picheli, F.P., Paula, A.V., Herculano, R.D.,

- Santos-Ebinuma, V.C., Farias, R.L., Onishi, B.S.D., Ribeiro, S.J.L, Pereira, J.F.B., Pessoa, A. 2022. A look into *Phaffia rhodozyma* biorefinery: From the recovery and fractionation of carotenoids, lipids and proteins to the sustainable manufacturing of biologically active bioplastics. *Bioresource Technology*, 362: 127785. Q1.
24. **Mussagy, C.**, Oshiro, A., Lima, C.A., Amantino, C.F., Primo, F.L., Santos-Ebinuma, V.C., Herculano, R.D. 2022. Natural fluorescent red colorants produced by *Talaromyces amestolkiae* as promising coloring agents for custom-made latex gloves. *Journal of Industrial and Engineering Chemistry*, 119:357-366. Q1.
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  28. Aires-Fernandes, M., Costa, R.M., do Amaral, S.R., **Mussagy, C.**, Santos-Ebinuma, V.C., Primo, F.L. 2022. Development of Biotechnological Photosensitizers for Photodynamic Therapy: Cancer Research and Treatment—From Benchtop to Clinical Practice. *Molecules*, 27: 6848. Q2.
  29. **Mussagy, C.**, Kurnia, A., Dias, A., Raghavan, V., Santos, V., Pessoa, A. 2022. An eco-friendly approach for the recovery of astaxanthin and  $\beta$ -carotene from *Phaffia rhodozyma* biomass using bio- based solvents. *Bioresource Technology*, 345: 126555. Q1.
  30. Canaan, M., Brasil, S., De Barros, R., **Mussagy, C.**, Guerra, B., Herculano, D. 2022. Soybean processing wastes and their potential in the generation of high value-added products. *Food Chemistry*, 373: 131476. Q1.
  31. **Mussagy, C.**, Santos, V., Herculano, D., Coutinho, A., Pereira, F., Pessoa, A. 2022. Ionic liquids or eutectic solvents? Identifying the best solvents for the extraction of astaxanthin and  $\beta$ -carotene from *Phaffia rhodozyma* yeast and preparation of biodegradable films. *Green Chemistry*, 24: 118-123. Q1.
  32. **Mussagy, C.**, Farias, F., Bila, M., Giannini, M., Pereira, J., Santo, V., Pessoa,

- A. 2022. Recovery of  $\beta$ -carotene and astaxanthin from *Phaffia rhodozyma* biomass using aqueous solutions of cholinium- based ionic liquids. *Separation and Purification Technology*, 290: 120852. Q1.
33. **Mussagy, C.**, Khan, S., Kot, A. 2021. Current developments on the application of microbial carotenoids as an alternative to synthetic pigments. *Critical Reviews in Food Science and Nutrition*, 62: 6932-6946. Q1.
34. Borges, A., **Mussagy, C.**, Nayrim, B., Menegatti, C., Herculano, D. 2022. Metronidazole-loaded goldnanoparticles in natural rubber latex as a potential wound dressing. *International Journal of Biological Macromolecules*, 211: 568-579. Q1.
35. Vieira, R., **Mussagy, C.**, Pereira, E., De Souza, C. 2022. Cellulose Nanoparticles Prepared by Ionic Liquid-Assisted Method Improve the Properties of Bionanocomposite Films. *Journal of Polymers and the Environment*, 30: 3174-3185. Q1.
36. Miranda, C., **Mussagy, C.**, Almeida, D. 2022. In vitro and alternative animal models to evaluate the biocompatibility of natural latex-calcium phosphate-based polymer. *Journal of Polymers and the Environment*, 30: 3174-3185. Q1.
37. **Mussagy, C.**, Winterburn, J., Santos, V., Pereira, J. 2021. Improvement of carotenoids production from *Rhodotorula glutinis* CCT-2186. *Biochemical Engineering Journal*, 165: 107827. Q2.
38. **Mussagy, C.**, Remonatto, D., Santos, V., Coutinho, J., Pereira, J. 2021. Selective recovery and purification of carotenoids and fatty acids from *Rhodotorula glutinis* using mixtures of biosolvents. *Separation and Purification Technology*, 266:118548. Q1.
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41. Remonatto, D., Juliana, C., **Mussagy, C.**, De Carvalho, V., Veloso, A. 2021. Utilization of Clay Materials as Support for *Aspergillus japonicus* Lipase: An Eco-Friendly Approach. *Catalysts*, 11: 1173. Q2.
42. Romeira, K., Abdalla, G., Gonçalves, R., **Mussagy, C.**, Herculano, D. 2021. Residual Starch Packaging Derived from Potato Washing Slurries to Preserve

Fruits. Food and Bioprocess Technology, 14: 2248-2259. Q1.

43. Marcelino, M., **Mussagy, C.**, De Oliveira, F., Scontri, M., Herculano, D. 2021. Synthesis and characterization of gold nanoparticles and their toxicity in alternative methods to the use of mammals. Journal of Environmental Chemical Engineering, 9, 106779. Q1.
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45. **Mussagy, C.**, Tabanez, N., Farias, F., Kurnia, K., Mafra, M., Pereira, J. 2020. Determination, characterization and modeling of aqueous biphasic systems composed of propylammonium-based ionic liquids and phosphate salts. Chemical Physics Letters, 754: 137623. Q2.
46. Kurnik, I., **Mussagy, C.**, Pereira, J., Lopes, A. 2020. New insights into determination of binodal curves and phase-separation mechanisms. Journal of Molecular Liquids, 318: 114245. Q1.
47. **Mussagy, C.**, Santo, V., Dias, A., Carvalho, P., Coutinho, J., Pereira, J. 2020. Integrative platform for the selective recovery of intracellular carotenoids and lipids from *Rhodotorula glutinis* CCT-2186 yeast using mixtures of bio-based solvents. Green Chemistry, 22: 8478-8494. Q1.
48. **Mussagy, C.**, Winterburn, J., Santos, V., Pereira, J. 2019. Production and extraction of carotenoids produced by microorganisms. Applied Microbiology and Biotechnology, 103, 1095-1114. Q1.
49. **Mussagy, C.**, Santos, V., Gonzalez, M., Coutinho, J., Pereira, J. 2019. Protic ionic liquids as cell disrupting agents for the recovery of intracellular carotenoids from yeast *Rhodotorula glutinis* CCT- 2186. ACS Sustainable Chemistry & Engineering, 7(19): 16765–16776. Q1.

## II. EXPERIENCIA EN PROYECTOS DE INVESTIGACION (2019 – presente)

### **Proyectos con fondos concursables**

1. Biotechnological process for the development of natural colorants from microbial sources for industrial application: phase II.  
Financiamiento: Program for Research on Bioenergy (BIOEN) - Young Investigators Grants - Phase 2 FAPESP-21/06686-8 (Brasil).  
Rol: Associated researcher Duración: 2022-2027  
Año adjudicación: 2022

2. Bioprocess intensification: a non-conventional technology for the extraction of astaxanthin from yeast biomass.  
Financiamiento: FAPESP- BEPE (BRASIL/CANADA) McGill University – University of Sao Paulo2021/12778-2  
Rol: Investigador responsableDuración: 2023-2024  
Año adjudicación: 2021