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EDUCATION

- 2017-2018** Sabbatical year at Colorado State University, Department of Chemical and Biological Engineering, Colorado State University, Fort Collins, CO, USA
- 2009-2013** Ph.D. in Chemistry/Polymer Chemistry/Materials Chemistry, State University of Maringá, Maringá, PR, Brazil
- 2005-2008** Bachelor's Degree in Chemistry, State University of Maringá, Maringá, PR, Brazil

RESEARCH INTERESTS

- Development and synthesis of hemocompatible polymeric materials for cardiovascular applications
- Development of advanced surface coatings for orthopedic applications
- Synthesis of polymeric materials via free and controlled radical polymerization
- Synthesis of hydrogels for use as soil conditioners
- Synthesis of nanomaterials for drug delivery
- Synthesis of adsorbent materials for water treatment
- Development of biodegradable plastic packaging
- Synthesis of composite materials based on polymers, metallic materials, and ionic liquids

FUNDING

- 2023 (Active)** 1. External Collaborator, National Science Foundation, "Condensed tannin polymers as new functional biomaterials" AWD-ID: 2306983

CURRENT COURSES TAUGHT

CHEM 360 – Introduction to Polymer chemistry
CHEM 216 - General Chemistry I Laboratory

PREVIOUS COURSES TAUGHT

Principles of Polymerization, Biomaterials Science, Polymer Chemistry, Chemical Kinetics, Thermodynamics, Introduction to Quantum Chemistry, General Chemistry I, General Chemistry II, General Chemistry II Laboratory

GOOGLE SCHOLAR LINK

<https://scholar.google.com/citations?user=mrZJGE0AAAAJ&hl=pt-BR>

PUBLICATIONS

Book Chapters

Polymers, Nanocomposites, and Drug Delivery

- 2021** 1. B. H. Vilsinski; R.S. Gonçalves; W. Caetano; R.R. Souza; A.C. de Oliveira; Y.S Gomes; A.P. Gerola, **A.F. Martins**, A.J.M. Valente, E.C. Muniz, Photodynamic therapy: use of nanocarrier systems to improve its effectiveness.: Springer.
- 2018** 2. Rufato, B. K; P.G. Juliana, S.K Ody; A.G.P. Basso; E. Corradini; **A.F. Martins**; A.T. Paulino; A.R. Fajardo; F.A. Aouada; F. Laporta; A.F. Rubira, E. C. Muniz. hydrogels based on chitosan and chitosan derivatives for biomedical applications. hydrogels. IntechOpen.
- 2017** 3. E. Corradini, **A.F. Martins**; E.C. Muniz. Preparation of polymeric mats through electrospinning for technological uses. Recent advances in complex functional materials. 1ed.: Springer.
- 2016** 4. A.R. Fajardo; A.G.B. Pereira; **A.F. Martins**; A.T. Paulino; E.C. Muniz; Y. Hsiehe. Chitin and chitosan based (nano)composites. nanocomposites: science and fundamentals

Publications in peer-reviewed journals

a) Tissue Engineering and Regenerative Medicine

- 2022 1. R. Maia Sabino; **A.F. Martins**; Matt J Kipper; Ketul C. Popat "Improved In Vitro Endothelialization on Nanostructured Titania with Tannin/glycosaminoglycan-based Polyelectrolyte Multilayers, *In Vitro Models*. <https://doi.org/10.1007/s44164-022-00024-x>
- 2021 2. R.M. Sabino, G. Mondini, M.J. Kipper, **A.F. Martins**, K.C. Popat, Tanfloc/heparin polyelectrolyte multilayers improve osteogenic differentiation of adipose-derived stem cells on titania nanotube surfaces, *Carbohydrate Polymers*. <https://doi.org/10.1016/j.carbpol.2020.117079>
3. A.M.S. Plath, S.P. Facchi, P.R. Souza, R.M. Sabino, E. Corradini, E.C. Muniz, K.C. Popat, L.C. Filho, M. J. Kipper, **A.F. Martins**, Zein supports scaffolding capacity toward mammalian cells and bactericidal and anti-adhesive properties on poly(ϵ -caprolactone)/zein electrospun fibers, *Materials Today Chemistry*, 100465. <https://doi.org/10.1016/j.mtchem.2021.100465>
- 2020 4. **A.F. Martins**, J. Vlcek, T. Wigmosta, M. Hedayati, M.M. Reynolds, K.C. Popat, M.J. Kipper, Chitosan/*iota*-carrageenan and chitosan/pectin polyelectrolyte multilayer scaffolds with antiadhesive and bactericidal properties, *Applied Surface Science*. <https://doi.org/10.1016/j.apsusc.2019.144282>.
5. P.C.F. da Câmara, L.Y.C. Madruga, R.M. Sabino, J. Vlcek, R.C. Balaban, K.C. Popat, **A.F. Martins**, M.J. Kipper, Polyelectrolyte multilayers containing a tannin derivative polyphenol improve blood compatibility through interactions with platelets and serum proteins, *Materials Science & Engineering C*. <https://doi.org/10.1016/j.msec.2020.110919>
6. A.C de Oliveira, R.M. Sabino, P.R. Souza, E.C. Muniz, K.C Popat, M.J. Kipper, R.S Zola, **A.F. Martins**. Chitosan/gellan gum ratio content into blends modulates the scaffolding capacity of hydrogels on bone mesenchymal stem cells, *Materials Science & Engineering C*. <https://doi.org/10.1016/j.msec.2019.110258>
7. R.M. Sabino, K. Kauk, L.Y.C. Madruga, M.J. Kipper, **A.F. Martins**, K.C Popat, Enhanced hemocompatibility and antibacterial activity on titania nanotubes with tanfloc/heparin polyelectrolyte multilayers, *Journal of Biomedical Materials Research Part A*. <https://doi.org/10.1002/jbm.a.36876>
8. J.A. da Cruz, A.B. da Silva, B.B.S. Ramin, P.R. Souza, K.C. Popat, R.S. Zola, M.J. Kipper, **A.F. Martins**, Poly(vinyl alcohol)/cationic tannin blend films with antioxidant and antimicrobial activities, *Materials Science & Engineering C*. <https://doi.org/10.1016/j.msec.2019.110357>
- 2019 9. P. da Câmara, R. Balaban, H. Mohammadhasan, P. Ketul, **A.F. Martins**, M. J. Kipper, Novel cationic tannin/glycosaminoglycan-based polyelectrolyte multilayers promote stem cells adhesion and proliferation. *RSC Advances*. 25836-25846. [10.1039/C9RA03903A](https://doi.org/10.1039/C9RA03903A)
10. B.R. Machado, S.B. Roberto, E.G. Bonafe. S.E.A. Camargo, C.H.R. Camargo, K.C. Popat, M.J. Kipper, **A.F. Martins**, Chitosan Imparts Better Biological Properties for Poly(ϵ -caprolactone) Electrospun Membranes Than Dexamethasone. *Journal of the Brazilian Chemical Society*. <https://doi.org/10.21577/0103-5053.20190077>
- 2018 11. **A.F. Martins**, S.P. Facchi, P.C.F. de Camara, S.E.A. Carmargo, C.H.R. Carmargo. K.C. Popat, and M.J. Kipper, Novel poly(ϵ -caprolactone)/amino-functionalized tannin electrospun membranes as scaffolds for tissue engineering. *Journal of Colloid and Interface Science*. <https://doi.org/10.1016/j.jcis.2018.04.060>.

12. J.G. Martins, S.E.A. Camargo, T.T. Bishop, K.C. Popat, M.J. Kipper, **A.F. Martins**, Pectin-Chitosan Membrane Scaffold Imparts Controlled Stem Cell Adhesion and Proliferation, *Carbohydrate Polymers*. <https://doi.org/10.1016/j.carbpol.2018.05.062>
- 2017 13. F.R Tentor, J.H de Oliveira, D.B Scariot, D. Lazarin-Bidoia, E.G Bonafe, C.V Nakamura, S.A.S Venter, J.P Monteiro, E.C Muniz, **A.F Martins**. Scaffolds based on chitosan/pectin thermosensitive hydrogels containing gold nanoparticles, *International Journal of Biological Macromolecules*. <https://doi.org/10.1016/j.ijbiomac.2017.04.106>.

b) Surface Engineering and Coatings

- 2024 14. F.R. Veregue, L.Y.C. Madruga, K.C. Popat, F.A. Rosa, E. Radovanovic, P. Matricardi, M.J. Kipper, **A.F. Martins**, Enhancing biological properties with straightforward deposition of durable heparin/chitosan surface coatings on wettable poly(ϵ -caprolactone)/Tween-20 electrospun fibers, *Surfaces and Interfaces*, <https://doi.org/10.1016/j.surfin.2024.104149>
15. E.P. Silva, F. Rehotnek, A.M.O. Lima, A. Pedroso, C.F. Freitas, T. Sequinel, **A.F. Martins**, E.C. Muniz, Design and fabrication strategies of molybdenum disulfide-based nanomaterials for combating SARS-CoV-2: A review. *Biomaterials Advances*. <https://doi.org/10.1016/j.bioadv.2024.213949>
16. A.C. de Oliveira, L.Y.C. Madruga, P. Chevallier, F. Copes, D. Mantovani, B.H. Vilsinski, P.R. Souza, K.C. Popat, M.J. Kipper, **A.F. Martins**. Cytocompatible and antimicrobial tannin-based polyelectrolyte multilayers deposited on poly(vinyl chloride) through layer-by-layer method. *Progress in Organic Coatings*. <https://doi.org/10.1016/j.porgcoat.2024.108629>
17. P.R. Souza, C.F. Freitas, J. Tsukamoto, G.S. Jacinto, C.W. Arns^e, H.S. Schrekker, L.Y.C. Madruga, M.J. Kipper, E.C. Muniz, **A.F. Martins**, Enhanced cytocompatible gelatin/chondroitin sulfate/ionic liquid polyelectrolyte multilayers with virucidal activity against mouse Hepatitis Coronavirus, *Journal of Molecular Liquids*, <https://doi.org/10.1016/j.molliq.2024.124300>.
- 2023 18. S. Baghersad, L.Y.C. Madruga, **A.F. Martins**, K.C. Popat, M.J. Kipper, Expanding the Scope of an Amphoteric Condensed Tannin, Tanfloc, for Antibacterial Coatings, *Journal of Functional Biomaterials*. <https://doi.org/10.3390/jfb14110554>
- 2022 19. P.R. Souza, B.H. Vilsinski, A.C. de Oliveira, S.B.R. Berton, H.S. Schrekker, E. Radovanovic, M.J. Kipper, **A.F. Martins**, E.C. Muniz, Poly(ethylene terephthalate) films coated with antimicrobial gelatin/chondroitin sulfate polyelectrolyte multilayers containing ionic liquids, *Progress in Organic Coatings*. <https://doi.org/10.1016/j.porgcoat.2022.106997>
- 2021 20. P.R. Souza, A.C. de Oliveira, B.H. Vilsinski, M.J. Kipper, **A.F. Martins**, Polysaccharide-based materials created by physical processes: From preparation to biomedical applications, *Pharmaceutics*. <https://doi.org/10.3390/pharmaceutics13050621>
21. K.B. Rufato, P.R. Souza, A.C. de Oliveira, S.B.R. Berton, R.M., E.C. Muniz, K.C. Popat, E. Radovanovic, M.J. Kipper, **A.F. Martins**, Antimicrobial and cytocompatible chitosan, *N,N,N*-trimethyl chitosan, and tanfloc-based polyelectrolyte multilayers on gellan gum films, *International Journal of Biological Macromolecules*. <https://doi.org/10.1016/j.ijbiomac.2021.04.138>
- 2020 22. S.P. Facchi, A.C. de Oliveira, E. de Oliveira T. Bezerra, J. Vlcek, M. Hedayati, M.M. Reynolds, M.J. Kipper, **A.F. Martins**, Polycationic condensed tannin/polysaccharide-based polyelectrolyte multilayers prevent microbial adhesion and proliferation, *European Polymer Journal*. <https://doi.org/10.1016/j.eurpolymj.2020.109677>
- 2016 23. H.D.M Follmann, A.F Naves, **A.F Martins**, O. Félix, G. Decher, E.C Muniz, R. Silva. Advanced fibroblast proliferation inhibition for biocompatible coating by electrostatic

- layer-by-layer assemblies of heparin and chitosan derivatives, *Journal of Colloid and Interface Science*. <https://doi.org/10.1016/j.jcis.2016.04.008>
- 2012 24. H.D.M Follmann, **A.F Martins**, A.P Gerola, T.A.L Burgo, C.V Nakamura, A.F Rubira, E.C Muniz. Antiadhesive and antibacterial multilayer films via layer-by-layer assembly of TMC/heparin complexes, *Biomacromolecules*. <https://doi.org/10.1021/bm3011962>

c) Hydrogels and Nanomaterials for Drug delivery

- 2023 25. K.B. Rufato, F.R. Veregue, R. de Paula Medeiro, C.B. Francisco, P.R. Souza, K.C. Popat, M.J. Kipper, **A.F. Martins**, Electrospinning of poly (vinyl alcohol) and poly (vinyl alcohol)/tannin solutions: A critical viewpoint about crosslinking, *Materials Today Communications*. <https://doi.org/10.1016/j.mtcomm.2023.106271>.
26. O.A. Silva, M.G. Pellá, R.M. Sabino, K.C. Popat, M.J. Kipper, A.F. Rubira, H.D.M. Follmann, R. Silva, **A.F. Martins**. Carboxymethylcellulose hydrogels crosslinked with keratin nanoparticles for efficient prednisolone delivery. *International Journal of Biological Macromolecules*. <https://doi.org/10.1016/j.ijbiomac.2023.124497>.
- 2022 27. S. Iqbal, **A.F. Martins**, M. Sohail, Z. Jingjing, D. Qi, L. Muhan, Z. Zhao, Synthesis and Characterization of Poly (β -amino ester) and Applied PEGylated and non-PEGylated Poly (β -amino ester)/plasmid DNA Nanoparticles for Efficient Gene Delivery, *Frontiers in Pharmacology*. <https://doi.org/10.3389/fphar.2022.854859>
28. O.A. Silva, M.G. Pellá, K.C. Popat, M.J. Kipper, A.F. Rubira, **A.F. Martins**, H.D.M. Follmann, R. Silva, Rod-shaped keratin nanoparticles extracted from human hair by acid hydrolysis as photothermally triggered berberine delivery system, *Advanced Powder Technology*. <https://doi.org/10.1016/j.apt.2021.11.005>
- 2021 29. A.C. de Oliveira, G.R.F de Lima, R.S. Klein, P.R. Souza, F.P. Garcia, C.V. Nakamura, **A.F. Martins**, Thermo- and pH-responsive chitosan/gellan gum hydrogels incorporated with the β -cyclodextrin/curcumin inclusion complex for efficient curcumin delivery, *Reactive & Functional Polymers*. <https://doi.org/10.1016/j.reactfunctpolym.2021.104955>
30. A.C de Oliveira, P.R Souza, B.H. Vilsinski, M.E.G Winkler, M.L. Bruschi, E. Radovanovic, E.C. Muniz, W. Caetano, A.J.M. Valente, **A.F. Martins**, Thermo- and pH-Responsive Gelatin/Polyphenolic Tannin/Graphene Oxide Hydrogels for Efficient Methylene Blue Delivery, *Molecules*. <https://doi.org/10.3390/molecules26154529>
31. L.C. Bonkovoski, B.H. Vilsinski, M.R. Panice, C.S. Nunes, G. Braga, Danielle Lazarin-Bidóia, C.V. Nakamura, **A.F. Martins**, E.C. Muniz, Cytocompatible drug delivery devices based on poly[(2-dimethylamino) ethyl methacrylate]/chondroitin sulfate polyelectrolyte complexes prepared in ionic liquids, *Journal of Drug Delivery Science and Technology*, <https://doi.org/10.1016/j.jddst.2021.102520>.
- 2020 32. E.T.O Bezerra, S. B. R. Berton, A. C. de Oliveira, P. R. Souza, C. F. Vecchi, M. L. Bruschi, B. H. Vilsinski, **A.F Martins**, The cooling of blends in water supports durable, thermo-responsive, and porous gelatin-polyphenolic tannin assemblies with antimicrobial activities. *Materials Today Communications*. <https://doi.org/10.1016/j.mtcomm.2020.101883>
33. B.H. Vilsinski, P. R. Souza, A. C de Oliveira, M.C. César Filho, A. J. M. Valente, E. C. Muniz, O. Borges, A. P. Gerola, W. Caetano, **A.F. Martins**, Photophysics and drug delivery behavior of methylene blue into Arabic-gum based hydrogel matrices. *Materials Today Communications*. <https://doi.org/10.1016/j.mtcomm.2020.101889>
34. P. R. Souza, B. H. Vilsinski, C. S Nunes, L. C. Bonkovoski, F. Garcia, C. V. Nakamura, W. Caetano, A. J. M. Valente, **A.F. Martins**, E. C. Muniz. Application of a polyelectrolyte complex based on biocompatible polysaccharides for colorectal cancer inhibition. *Carbohydrate Research*. <https://doi.org/10.1016/j.carres.2020.108194>.
- 2019 35. A.C. de Oliveira, B. H. Vilsinski, E. G. Bonafe, J. P. Monteiro, M. J. Kipper, **A.F. Martins**. Chitosan content modulates durability and structural homogeneity of chitosan-gellan

- gum assemblies. *International Journal of Biological Macromolecules*. <https://doi.org/10.1016/j.ijbiomac.2019.01.110>
36. B.B.S. Ramin, K.B. Rufato, R.M. Sabino, K.C. Popat, M.J. Kipper, **A.F. Martins**, E.C. Muniz, Chitosan/iota-carrageenan/curcumin-based materials prepared by precipitating miscible solutions prepared in ionic liquid. *Journal of Molecular Liquids*. <https://doi.org/10.1016/j.molliq.2019.111199>
- 2017** 37. D.P Facchi, A.C. Lima, J.H de Oliveira, D. Lazarin-Bidóia, C.V Nakamura, E.A Canesin, E. G Bonafé, J.P Monteiro, J.V Visentainer, E.C Muniz, **A.F. Martins** Polyelectrolyte complexes based on alginate/tanfloc: Optimization, characterization and medical application, *International Journal of Biological Macromolecules*. <https://doi.org/10.1016/j.ijbiomac.2017.05.033>
38. E.A.M.S Almeida, I.C Bellettini, F.P Garcia, M.T Farinácio, C.V Nakamura, A.F Rubira, **A.F Martins**, E.C Muniz, Curcumin-loaded dual pH-and thermo-responsive magnetic microcarriers based on pectin maleate for drug delivery, *Carbohydrate Polymers*. <https://doi.org/10.1016/j.carbpol.2017.05.034>
39. C.S Nunes, K.B Rufato, P.R Souza, E.A.M.S de Almeida, M.J.V da Silva, D.B Scariot, C.V Nakamura, F.A Rosa, **A.F Martins**, E.C Muniz. Chitosan/chondroitin sulfate hydrogels prepared in [Hmim][HSO₄] ionic liquid, *Carbohydrate Polymers*. <https://doi.org/10.1016/j.carbpol.2017.04.073>
- 2016** 40. S.P Facchi, D.B Scariot, P.V.A Bueno, P.R Souza, L.C Figueiredo, H.D.M Follmann, C.S Nunes, J.P Monteiro, E.G Bonafé, C.V Nakamura, E.C Muniz, **A.F Martins**. Preparation and cytotoxicity of N-modified chitosan nanoparticles applied in curcumin delivery, *International Journal of Biological Macromolecules*. <https://doi.org/10.1016/j.ijbiomac.2016.02.063>
- 2015** 41. L.C Bonkovoski, **A.F Martins**, I.C Bellettini, F.P Garcia, C.V Nakamura, A.F Rubira, E.C Muniz. Polyelectrolyte complexes of poly[(2-dimethylamino) ethyl methacrylate]/chondroitin sulfate obtained at different pHs: Preparation, characterization, cytotoxicity and controlled release of chondroitin sulfate. *Journal of Controlled Release*. <https://doi.org/10.1016/j.jconrel.2015.05.046>
42. **A.F. Martins**, J.P. Monteiro, S.P. Facchi, L. Bonkovoski, C. Silva, A. Gerola, S. Nocchi, C. Nakamura, E. Giroto, A.F Rubira, E.C Muniz. Smart hydrogel beads with potential therapeutic target in Caco-2 colon cancer cells, *Journal of Controlled Release*. <https://doi.org/10.1016/j.jconrel.2015.05.045>
43. **A.F Martins**, J.P Monteiro, E.G Bonafé, A.P Gerola, C.T.P Silva, E.M Giroto, A.F Rubira, E.C Muniz. Bactericidal activity of hydrogel beads based on N, N, N-trimethyl chitosan/alginate complexes loaded with silver nanoparticles, *Chinese Chemical Letters*. <https://doi.org/10.1016/j.ccllet.2015.04.032>
44. P.V.A Bueno, P.R Souza, H.D.M Follmann, A.G.B Pereira, **A.F Martins**, A.F Rubira, E.C Muniz, N,N-Dimethyl chitosan/heparin polyelectrolyte complex vehicle for efficient heparin delivery. *International Journal of Biological Macromolecules*. <https://doi.org/10.1016/j.ijbiomac.2015.01.030>
- 2014** 45. L.C Bonkovoski, **A.F Martins**, I.C Bellettini, F.P Garcia, C. Nakamura, A.F Rubira, E.C Muniz. Polyelectrolyte complexes of poly[(2-dimethylamino) ethyl methacrylate]/chondroitin sulfate obtained at different pHs: I. Preparation, characterization, cytotoxicity and controlled release of chondroitin sulfate *International Journal of Pharmaceutics*. <https://doi.org/10.1016/j.ijpharm.2014.10.017>
- 2013** 46. **A.F Martins**, P.V.A Bueno, E.A.M.S Almeida, F.H.A Rodrigues, A.F Rubira, E.C Muniz. Characterization of N-trimethyl chitosan/alginate complexes and curcumin release. *International Journal of Biological Macromolecules*. <https://doi.org/10.1016/j.ijbiomac.2013.03.029>
- 2013** 47. **A.F Martins**, D.M de Oliveira, A.G.B Pereira, A.F Rubira, E.C Muniz. Chitosan/TPP microparticles obtained by microemulsion method applied in controlled release of

heparin. *International Journal of Biological Macromolecules*. <https://doi.org/10.1016/j.ijbiomac.2012.08.032>

- 2011 48. **A.F. Martins**, J.F. Piai, I.T.A. Schuquel, A.F. Rubira, E.C. Muniz. Polyelectrolyte complexes of chitosan/heparin and N, N, N-trimethyl chitosan/heparin obtained at different pH: I. Preparation, characterization, and controlled release of heparin. *Colloid and Polymer Science*. <https://doi.org/10.1007/s00396-011-2437-5>

d) Materials for Water Treatment

- 2022 49. E. Bonifácio, D.P. Facchi, P.R. Souza, J.P. Monteiro, K.C. Popat, M.J. Kipper, **A.F. Martins**, A tannin-polymer adsorbent created from the freezing-thawing method for removal of metal-complex acid black 172 and methylene blue from aqueous solutions, *Journal of Molecular Liquids*. <https://doi.org/10.1016/j.molliq.2022.118682>
50. D.P. Facchi, S.P. Facchi, P.R. Souza, E.G. Bonafé, K.C. Popat, M.J. Kipper, **A.F. Martins**, Composite filter with antimicrobial and anti-adhesive properties based on electrospun poly(butylene adipate-co-terephthalate)/poly(acid lactic)/Tween 20 fibers associated with silver nanoparticles, *Journal of Membrane Science*. <https://doi.org/10.1016/j.memsci.2022.120426>
51. L. Del C. B. Araújo, H.K. de Matos, D.P. Facchi, D.A. de Almeida, B.M.G. Gonçalves, J.P. Monteiro, **A.F. Martins**, E.G. Bonafé, Natural carbohydrate-based thermosensitive chitosan/pectin adsorbent for removal of Pb(II) from aqueous solutions, *International Journal of Biological Macromolecules*. <https://doi.org/10.1016/j.ijbiomac.2021.11.014>
- 2021 52. A.G.B. Pereira, F.H.A. Rodrigues, A.T. Paulino, **A.F. Martins**, A.R. Fajardo. Recent advances on composite hydrogels designed for the remediation of dye-contaminated water and wastewater: a review, *Journal of Cleaner Production*. <https://doi.org/10.1016/j.jclepro.2020.124703>
- 2020 53. I. P. A. F. Souza, L. H. S. Crespo, L. Spessato, S. A. R. Melo, **A.F. Martins**, A. L. Cazetta, V. C. Almeida, Optimization of thermal conditions of sol-gel method for synthesis of TiO₂ using RSM and its influence on photodegradation of tartrazine yellow dye, *Journal of Environmental Chemical Engineering*. <https://doi.org/10.1016/j.jece.2020.104753>.
54. L.Z. Silva, M.R. Mauricio, P.G. Dubiela, **A.F. Martins**, A.F. Rubira. Star-shaped amino-functionalized poly(glycerol methacrylate)-stabilized gold nanoparticle composites with catalytic activity for reduction of 4-nitrophenol, *Journal of Molecular Liquids*. <https://doi.org/10.1016/j.molliq.2020.114119>
55. J.G. Martins, D.P. Facchi, S.B.R. Berton, C.S. Nunes, M. Matsushita, E.G. Bonafé, K.C. Popat, V.C. Almeida, M.J. Kipper, **A.F. Martins**, Removal of Cu(II) from aqueous solutions imparted by a pectin-based film: Cytocompatibility, antimicrobial, kinetic, and equilibrium studies, *International Journal of Biological Macromolecules*. <https://doi.org/10.1016/j.ijbiomac.2020.02.220>
56. L. Spessato, A.L. Cazetta, S. Melo, O. Pezoti, J. Tami, A. Ronix, J.M. Fonseca, **A.F. Martins**, T.L. Silva, V.C. Almeida, Synthesis of superparamagnetic activated carbon for paracetamol removal from aqueous solution, *Journal of Molecular Liquids*. <https://doi.org/10.1016/j.molliq.2019.112282>
- 2019 57. K.B. Rufato, V.C. Almeida, M.J. Kipper, A.F. Rubira, **A.F. Martins**, E.C. Muniz, Polysaccharide-based adsorbents prepared in ionic liquid with high performance for removing Pb(II) from aqueous systems. *Carbohydrate Polymers*. <https://doi.org/10.1016/j.carbpol.2019.03.095>
58. A.P. Lopes, P.R. Souza, E.G. Bonafe, J.V. Visentainer, **A.F. Martins**, E.A. Canesin Purified glycerol is produced from the frying oil transesterification by combining a pre-purification strategy performed with condensed tannin polymer derivative followed by

ionic exchange. *Fuel Processing Technology*.
<https://doi.org/10.1016/j.fuproc.2019.01.014>

59. L. Cazetta, L. S, K. C Bedin, I.P.F.A Souza, R.A Araújo, **A.F. Martins**, T. L Silva, R. Silva, V. C Almeida. Metal-free ovalbumin-derived N-S-co-doped nanoporous carbon materials as efficient electrocatalysts for oxygen reduction reaction. *Applied Surface Science*. <https://doi.org/10.1016/j.apsusc.2018.10.140>
- 2018 60. D.P. Facchi, A.L. Cazetta, E.A. Canesin, V.C. Almeida, E.G. Bonafé, M.J. Kipper, **A.F. Martins**, New magnetic chitosan/alginate/Fe₃O₄@SiO₂ hydrogel composites applied on removal of Pb(II) ions from aqueous systems. *Chemical Engineering Journal*. <https://doi.org/10.1016/j.cej.2017.12.142>

e) Biodegradable Food Packaging Solutions

- 2024 61. W.J. do Nascimento, J.C.M. da Costa, E.S. Alves, M.C. de Oliveira, J.P. Monteiro, **A.F. Martins**, E.G. Bonafé, Zinc oxide nanoparticle-reinforced pectin/starch functionalized films: A sustainable solution for biodegradable packaging, *International Journal of Biological Macromolecules*. <https://doi.org/10.1016/j.ijbiomac.2023.128461>
62. J.C.M da Costa, A.R.S Bruni, G.A.M de Jesus; E.S Alves; O.O.S. Junior, **A.F. Martins**, E.G. Bonafé Strong and UV Blocking edible coatings composed of κ-carrageenan/cassava starch/CuONPs exhibit similar performance to petroleum-based materials on the shelf-life of fresh pears, *Journal of Food Engineering*. <https://doi.org/10.1016/j.jfoodeng.2023.111853>
- 2023 63. G.A.M. de Jesus, S.B.R. Berton, B.M. Simões, R.S. Zola, J.P. Monteiro, **A.F. Martins**, E.G. Bonafé, κ-Carrageenan/poly(vinyl alcohol) functionalized films with gallic acid and stabilized with metallic ions, *International Journal of Biological Macromolecules*. <https://doi.org/10.1016/j.ijbiomac.2023.127087>.
- 2020 64. B. R. Machado, S. P. Facchi, A. C de Oliveira, C. S. Nunes, P. R. Souza, B. H. Vilsinski, K. C. Popat, M. J. Kipper, E. C. Muniz, **A.F. Martins**, Bactericidal Pectin/Chitosan/Glycerol Films for Food Pack Coatings: A Critical Viewpoint. *International Journal of Molecular Science*. <https://doi.org/10.3390/ijms21228663>
65. C. de Lima Barizão, M.I Crepaldi, O. de Oliveira S. junior, A.C de Oliveira, **A.F Martins**, P.S Garcia, E.G Bonafé. Biodegradable films based on commercial κ-carrageenan and cassava starch to achieve low production costs, *International Journal of Biological Macromolecules*, 582-590. <https://doi.org/10.1016/j.ijbiomac.2020.09.150>
- 2018 66. J.G. Martins, A.C. de Oliveira, P.S. Garcia, M.J. Kipper, **A.F Martins**, Durable pectin/chitosan membranes with self-assembling, water resistance and enhanced mechanical properties *Carbohydrate Polymers*. <https://doi.org/10.1016/j.carbpol.2018.01.112>
- 2014 67. E. Corradini, P. Curti, A. Meniqueti, **A.F. Martins**, A.F. Rubira, E.C. Muniz. Recent advances in food-packing, pharmaceutical and biomedical applications of zein and zein-based materials. *International Journal of Molecular Sciences*. <https://doi.org/10.3390/ijms151222438>

f) Polymer-based Materials for Agricultural Uses

- 2023 68. S.P. Facchi, P.R. Souza, L.Y.C. Madruga, P. Rosseto, W.M. de Carvalho Nunes, M.J. Kipper, **A.F. Martins**, Lúcio Cardozo-Filho, Surface coatings based on chitosan and tannins applied in the *in vivo* prevention of corn streak disease, *Chemical Engineering Journal*. <https://doi.org/10.1016/j.cej.2023.147003>.

- 2020 69. S.B.R. Berton, G.A.M. de Jesus, R.M. Sabino, J.P. Monteiro, S.A.S. Venter, M.L. Bruschi, K.C. Papat, M. Matsushita, **A.F. Martins**, E.G. Bonafé, Properties of a commercial κ -carrageenan food ingredient and its durable superabsorbent hydrogels, *Carbohydrate Research*. <https://doi.org/10.1016/j.carres.2019.107883>
- 2017 70. A.G.B Pereira, **A.F Martins**, A.T Paulino, A.R Fajardo, M.R Guilherme, M.G.I Faria, G.A Linde, A.F Rubira, E.C Muniz. Recent advances in designing hydrogels from chitin and chitin-Derivatives and their impact on environment and agriculture: a review. *Revista Virtual de Química*. <http://rvq.sbgq.org.br>
- 2015 71. M.R Guilherme, F.A Aouada, A.R Fajardo, **A.F Martins**, A.T Paulino, M.F.T Davi, A.F Rubira, E.C Muniz. Superabsorbent hydrogels based on polysaccharides for application in agriculture as soil conditioner and nutrient carrier: A review, *European Polymer Journal*. <https://doi.org/10.1016/j.eurpolymj.2015.04.017>
- 2013 72. F.H.A Rodrigues, C. Spagnol, A.G.B Pereira, **A.F Martins**, A.R Fajardo, A.F Rubira, E.C Muniz. Superabsorbent hydrogel composites with a focus on hydrogels containing nanofibers or nanowhiskers of cellulose and chitin. *Journal of Applied Polymer Science*. <https://doi.org/10.1002/app.39725>

g) Sensing Applications

- 2023 73. D.A. de Almeida, A.C. de Oliveira, R.S. Klein, E.G. Bonafé, M.J. Kipper, **A.F. Martins**, J.P. Monteiro, κ -Carrageenan-capped core-shell gold@silver nanoparticles: Optical sensors for reactive oxygen species, *Nano-Structure & Nano-Objects*. <https://doi.org/10.1016/j.nanoso.2022.100861>
- 2022 74. R.S. Klein, E.G. Bonafé, **A.F. Martins**, J. P. Monteiro, Trans-resveratrol electrochemical detection using portable device based on unmodified screen-printed electrode, *Journal of Pharmaceutical and Biomedical Analysis*. <https://doi.org/10.1016/j.jpba.2021.114399>
- 2016 75. J.P Monteiro, S.M Predabon, E.G Bonafé, **A.F Martins**, A.G Brolo, E. Radovanovic, E.M Giroto. SPR platform based on image acquisition for HER2 antigen detection *Nanotechnology*. DOI: 10.1088/1361-6528/28/4/045206

h) Composite Materials and Their Applications

- 2024 76. G.P. Libel, S.P. Facchi, D.A. de Almeida, L.C. Madruga, M.J. Kipper, H.S. Schrekker, **A.F. Martins**, E. Radovanovic, Cross-linked poly(vinyl alcohol)/citric acid electrospun fibers containing imidazolium ionic liquid with enhanced antiadhesive and antimicrobial properties, *Materials Chemistry & Physics*, <https://doi.org/10.1016/j.matchemphys.2024.129087>.
77. A.B. da Silva, S.P. Facchi, F. Maesta, E.G. Bonafé, A.F. Rubira, **A.F. Martins**. Electrospun fibers based on Eudragit L100 complexed with Cu(II): Optimization, kinetic study, and antimicrobial activity. *Molecules*. <https://doi.org/10.3390/molecules29122835>
- 2021 78. P. R. Souza, B. H. Vilsinski, A. C de Oliveira, S. B. R. Berton, C. S. Nunes, M. J. Kipper, H. S. Schrekker, **A.F. Martins**, E. C. Muniz, Chitosan/heparin blends in ionic liquid produce polyelectrolyte complexes that quickly adsorb citrate-capped silver nanoparticles, forming bactericidal composites, *Journal of Molecular Liquids*, 115548. <https://doi.org/10.1016/j.molliq.2021.115548>
- 2020 79. A.B. da Silva, K.B. Rufato, A.C. de Oliveira, P.R Souza, E.P. da Silva, E.C. Muniz, B.H. Vilsinski, **A.F. Martins**, Composite materials based on chitosan/gold nanoparticles: From synthesis to biomedical applications, *International Journal of Biological Macromolecules*. <https://doi.org/10.1016/j.ijbiomac.2020.06.113>

80. D.A. de Almeida, R.M. Sabino, P.R. Souza, E.G. Bonafé, S.A.S. Venter, K.C. Popat, **A.F. Martins**, J.P. Monteiro, Pectin-capped gold nanoparticles synthesis *in-situ* for producing durable, cytocompatible, and superabsorbent hydrogel composites with chitosan, *International Journal of Biological Macromolecules*. <https://doi.org/10.1016/j.ijbiomac.2020.01.058>
- 2017** 81. F. Tentor, D. Lazarin-Bidóia, L. Bonkovoski, J.P. Monteiro, E.G. Bonafé, C.V. Nakamura, S. Venter, A.F. Rubira, E.C. Muniz, **A.F. Martins**. Thermo-sensitive hydrogel of pectin/chitosan containing gold nanoparticles for biological applications, *Journal of Controlled Release* (2017). <https://doi.org/10.1016/j.jconrel.2017.03.084>
82. D.P. Facchi, J.A. da Cruz, E.G. Bonafé, A.G.B. Pereira, A.R. Fajardo, S.A.S. Venter, J.P. Monteiro, E.C. Muniz, **A.F. Martins**. Polysaccharide-based materials associated with or coordinated to gold nanoparticles: Synthesis and medical application, *Current Medicinal Chemistry*. <https://doi.org/10.2174/0929867324666170309123351>
- 2015** 83. **A.F. Martins**, H.D.M. Follmann, J.P. Monteiro, E.G. Bonafé, S. Nocchi, C.T.P. Silva, C.V. Nakamura, E.M. Giroto, A.F. Rubira, E.C. Muniz. Polyelectrolyte complex containing silver nanoparticles with antitumor property on Caco-2 colon cancer cells, *International Journal of Biological Macromolecules*. <https://doi.org/10.1016/j.ijbiomac.2015.05.036>
84. **A.F. Martins**, S.P. Facchi, J.P. Monteiro, S.R. Nocchi, C.T.P. Silva, C.V. Nakamura, E.M. Giroto, A.F. Rubira, E.C. Muniz. Preparation and cytotoxicity of N, N, N-trimethyl chitosan/alginate beads containing gold nanoparticles. *International Journal of Biological Macromolecules*. <https://doi.org/10.1016/j.ijbiomac.2014.08.020>

i) Electrospinning and Synthesis of polysaccharide derivatives

- 2020** 85. D.P. Facchi, P.R. Souza, V.C. Almeida, E.G. Bonafé, **A.F. Martins**, Optimizing the Ecovio® and Ecovio®/zein solution parameters to achieve electrospinnability and provide thin fibers, *Journal of Molecular Liquids*. <https://doi.org/10.1016/j.molliq.2020.114476>
86. K.J.P. Pavezi, A. Rocha, E.G. Bonafé, **A.F. Martins**, Electrospinning-electrospraying of poly(acid lactic) solutions in binary chloroform/formic acid and chloroform/acetic acid mixtures, *Journal of Molecular Liquids*. <https://doi.org/10.1016/j.molliq.2020.114448>
- 2016** 87. H.D.M. Follmann, **A.F. Martins**, T.M. Nobre, J.D. Bresolin, T.S.P. Cellet, P. Valderrama, D.S. Correa, E.C. Muniz, O.N. Oliveira Jr. Extent of shielding by counterions determines the bactericidal activity of N, N, N-trimethyl chitosan salts, *Carbohydrate Polymers*. <https://doi.org/10.1016/j.carbpol.2015.10.083>
88. D. Facchi, S. Facchi, **A.F. Martins**. N,N,N-Trimethyl chitosan and its potential bactericidal activity: Current aspects and technological applications, *Journal of Infectious Diseases & Therapy*. doi:10.4172/2332-0877.1000291
- 2015** 89. **A.F. Martins**, S.P. Facchi, H.D.M. Follmann, A.P. Gerola, A.F. Rubira, E.C. Muniz, Shielding effect of 'surface ion pairs' on physicochemical and bactericidal properties of N, N, N-trimethyl chitosan salts. *Carbohydrate Research*. <https://doi.org/10.1016/j.carres.2014.10.002>
90. E.A.M.S. Almeida, S.P. Facchi, **A.F. Martins**, S. Nocchi, I.T.A. Schuquel, C.V. Nakamura, A.F. Rubira, E.C. Muniz. Synthesis and characterization of pectin derivative with antitumor property against Caco-2 colon cancer cells. *Carbohydrate Polymers*. <https://doi.org/10.1016/j.carbpol.2014.08.085>
- 2014** 91. **A.F. Martins**, S.P. Facchi, H.D. Follmann, A.G.B. Pereira, A.F. Rubira, E.C. Muniz. Antimicrobial activity of chitosan derivatives containing N-quaternized moieties in its backbone: a review. *International Journal of Molecular Sciences* <https://doi.org/10.3390/ijms151120800>
- 2013** 92. **A.F. Martins**, P.V.A. Bueno, H.D.M. Follmann, S.R. Nocchi, C.V. Nakamura, A.F. Rubira, E.C. Muniz. Synthesis, characterization, and cytotoxicity of TMC-graft-poly (vinyl alcohol)

- copolymers. *Carbohydrate Research*. <https://doi.org/10.1016/j.carres.2012.11.014>
- 2011 93. **A.F. Martins**, A.G.B Pereira, A.R Fajardo, A.F Rubira, E.C Muniz. Characterization of polyelectrolytes complexes based on N, N, N-trimethyl chitosan/heparin prepared at different pH conditions. *Carbohydrate Polymers*. <https://doi.org/10.1016/j.carbpol.2011.06.024>

j) Others

- 2021 94. S.B.R Berton, E.G. Bonafé, G.A.M. de Jesus, R. da Silveira, J.V. Visentainer, **A.F. Martins**, M. Matsushita, Sensitivity of phenolic compounds evaluated by a new approach of analytical methods, *Chemical Papers*. <https://doi.org/10.1007/s11696-021-01698-5>
- 2020 95. S. B. R. Berton, M. P. Ferreira, E. A. Canesin, R. M. Suzuki, **A. F. Martins**, E. G. Bonafé, M. Matsushita Sequência didática para a promoção de estudo prático e multidisciplinar com materiais acessíveis. *Química Nova*. <http://dx.doi.org/10.21577/0100-4042.20170506>
96. M.V. Recanello, E.K. Lenzi, **A.F. Martins**, Q. Li, R.S. Zola, Extended adsorbing surface reach and memory effects on the diffusive behavior of particles in confined systems, *International Journal of Heat and Mass Transfer*. <https://doi.org/10.1016/j.ijheatmasstransfer.2020.119433>
97. S.B.R Berton, M. Cabral, G. de Jesus, M. Sarragiotto, E. Pilau, **A.F. Martins**, E.G. Bonafé, M. Matsushita, Ultra-high-performance liquid chromatography supports a new reaction mechanism between free radicals and ferulic acid with antimicrobial and antioxidant activities, *Industrial Crops & Products*. <https://doi.org/10.1016/j.indcrop.2020.112701>
- 2019 98. R.F. de Souza, E. K. Lenzi, L. R. Evangelista, **A.F. Martins** Surface driven reflection tuning in chiral nematic liquid crystals, *Optics & Laser Technology*. <https://doi.org/10.1016/j.optlastec.2019.105745>
- 2018 99. F. D. Inácio, **A.F. Martins**, A.G. Contato, T. Brugnari, R. M. Peralta, C.G.M. de Souza. Biodegradation of human keratin by protease from the basidiomycete *Pleurotus pulmonarius*. *International Biodeterioration & Biodegradation*. <https://doi.org/10.1016/j.ibiod.2017.11.010>
100. G. F. Silva, M.B Galuch, **A.F. Martins**, D.G.O Prado, J.V Visentainer, E.G Bonafé Optimization and Validation of an Extraction Method for Evaluating the Availability of Cu, Zn, Mn, Ni, Cr and Cd in Soil with the Use of the Mehlich-1 Extractor. *Journal of the Brazilian Chemical Society*. <https://doi.org/10.21577/0103-5053.20180075>
101. L.C. de Figueiredo, E. G. Bonafe, J.G. Martins, **A.F. Martins**, S.A. Maruyama, O.O.S. Junior, P.B. França Biondo, M. Matsushita, J.V. Visentainer. Development of an ultrasound assisted method for determination of phytosterols in vegetable oil. *Food Chemistry*. <https://doi.org/10.1016/j.foodchem.2017.07.140>
- 2017 102. E.G Bonafé, L.C de Figueiredo, **A.F. Martins**, J.P Monteiro, O.O.S Junior, E.A Canesin, S. A Maruyama, J.V Visentainer. Incorporation of conjugated fatty acids into Nile tilapia (*Oreochromis niloticus*) *Science of Food and Agriculture*. <https://doi.org/10.1002/jsfa.8149>
- 2016 103. R.N Michels, E.G Bonafe, L.C Figueiredo, R.M Suzuki, L.D Tonin, P. F Montanher, **A.F. Martins**, J.V Visentainer, M.G Canteri, M.A.A Silva. Effects of different numbers of fungicide application on the proximate composition of soybean. *Journal of the Brazilian Chemical Society*. <https://doi.org/10.5935/0103-5053.20160053>

PATENTS

- 2023** 1. A.C. de Oliveira, B. Medina, B.H. Vilsinski, **A.F. Martins**, Process for manufacturing chitosana and gellan gum hydrogels and potential applications. **2018**, Brazil. Patent: Privilege of Innovation. Registration number: BR10201801432, Registration Institution: INPI - National Institute of Industrial Property (Brazil).

AWARDS AND ACHIEVEMENTS

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