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Education:

- I spent a “sabbatical year” at the Colorado State University (CSU) between August 2017 and July 2018 in the Department of Chemical and Biological Engineering, Fort Collins, CO 80523, USA.
- **Ph.D. in chemistry (Materials Chemistry, 2013)**. State University of Maringá (UEM), Department of Chemistry. Dissertation title: Preparation, characterization and application of polymeric materials based on chitosan and N,N,N-trimethyl chitosan.
- **M.S. in Chemistry** (2011). State University of Maringá (UEM), Department of Chemistry. Thesis title: Preparation, characterization and studies of the physicochemical properties of N,N,N-trimethyl chitosan/heparin polyelectrolyte complexes obtained at different pHs for use in controlled heparin release
- **B.S. in Chemistry** (2008). State University of Maringá (UEM), Brazil.

Research interests:

My broad research interests are: Biomaterials; Polyelectrolytes; Polysaccharides; Surface coatings; Layer-by-layer; Thin films; Electrospinning; Drug delivery systems; Scaffolds for tissue engineering; Molecular design of biomaterials; Hydrogels; Nanomaterials; Composites; Metallic nanoparticles;

Work:

ORCID	Research ID	h-index	Peer-Reviewed papers and books chapters	Advised students (M.S.)	Advised students (Ph.D.)
0000-0003-1002-3436	AAS-8543-2020	32	99	12	2

Refereed Journal Publications (2020-2022):

1. 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* (2022). <https://doi.org/10.1016/j.porgcoat.2022.106997>
2. R.M. Sabino; **A.F. Martins**; M.J. Kipper; K.C. Popat, "Improved In Vitro Endothelialization on Nanostructured Titania with Tannin/glycosaminoglycan-based Polyelectrolyte Multilayers, *In Vitro Models* (2022). <https://doi.org/10.1007/s44164-022-00024-x>
3. 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* (2022). <https://doi.org/10.1016/j.molliq.2022.118682>
4. 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 lactac)/Tween 20 fibers associated with silver nanoparticles, *Journal of Membrane Science* (2022). <https://doi.org/10.1016/j.memsci.2022.120426>
5. 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* (2022). <https://doi.org/10.1016/j.nanoso.2022.100861>
6. 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* (2022). <https://www.frontiersin.org/articles/10.3389/fphar.2022.854859/abstract>
7. 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, *International Journal of Biological Macromolecules* (2022). <https://doi.org/10.1016/j.ijbiomac.2021.11.014>
8. 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*, (2022). <https://doi.org/10.1016/j.apt.2021.11.005>

9. 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* (2022) 114339. <https://doi.org/10.1016/j.jpba.2021.114399>
10. R.M. Sabino, G. Mondini, M.J. Kipper, **A.F. Martins**, K.C. Papat, Tanfloc/heparin polyelectrolyte multilayers improve osteogenic differentiation of adipose-derived stem cells on titania nanotube surfaces, *Carbohydrate Polymers* (2021) 117079. <https://doi.org/10.1016/j.carbpol.2020.117079>
11. 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* (2021) 104955. <https://doi.org/10.1016/j.reactfunctpolym.2021.104955>
12. 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* (2021) 4529. <https://doi.org/10.3390/molecules26154529>
13. 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* (2021) 621. <https://doi.org/10.3390/pharmaceutics13050621>
14. K.B. Rufato, P.R. Souza, A.C. de Oliveira, S.B.R. Berton, R.M. Sabino, E.C. Muniz, K.C. Papat, 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* (2021). <https://doi.org/10.1016/j.ijbiomac.2021.04.138>
15. A.M.S. Plath, S.P. Facchi, P.R. Souza, R.M. Sabino, E. Corradini, E.C. Muniz, K.C. Papat, 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*, (2021) 100465. <https://doi.org/10.1016/j.mtchem.2021.100465>
16. 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*, (2021), <https://doi.org/10.1016/j.jddst.2021.102520>.
17. 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* (2021) 115548. <https://doi.org/10.1016/j.molliq.2021.115548>
18. 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* (2021) 4849–4859. <https://doi.org/10.1007/s11696-021-01698-5>
19. B. R. Machado, S. P. Facchi, A. C de Oliveira, C. S. Nunes, P. R. Souza, B. H. Vilsinski, K. C. Papat, 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* (2020), 8673. <https://doi.org/10.3390/ijms21228663>
20. 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* (2020), 104753. <https://doi.org/10.1016/j.jece.2020.104753>.
21. 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* (2020) 101883. <https://doi.org/10.1016/j.mtcomm.2020.101883>
22. 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* (2020) 101889. <https://doi.org/10.1016/j.mtcomm.2020.101889>.
23. 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* (2020), 108194. <https://doi.org/10.1016/j.carres.2020.108194>.
24. 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* (2020), 1-7. <http://dx.doi.org/10.21577/0100-4042.20170506>
25. 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 *k*-carrageenan and cassava starch to achieve low production costs,

26. 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*, (2020) 114119. <https://doi.org/10.1016/j.molliq.2020.114119>
27. 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*, (2020) 124703. <https://doi.org/10.1016/j.jclepro.2020.124703>
28. 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*, (2020) 114476. <https://doi.org/10.1016/j.molliq.2020.114476>
29. 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*, (2020) 114448. <https://doi.org/10.1016/j.molliq.2020.114448>
30. 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*, (2020) 977-998. <https://doi.org/10.1016/j.ijbiomac.2020.06.113>
31. 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*, (2020) 77-89. <https://doi.org/10.1016/j.ijbiomac.2020.02.220>
32. 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*, (2020) 109677. <https://doi.org/10.1016/j.eurpolymj.2020.109677>
33. 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*, (2020) 110919. <https://doi.org/10.1016/j.msec.2020.110919>
34. 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*, (2020) 119433. <https://doi.org/10.1016/j.ijheatmasstransfer.2020.119433>
35. 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*, (2020) 138-149. <https://doi.org/10.1016/j.ijbiomac.2020.01.058>
36. 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*, (2020) 112282. <https://doi.org/10.1016/j.molliq.2019.112282>
37. 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*, (2020) 110357. <https://doi.org/10.1016/j.msec.2019.110357>
38. **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*, (2020) 144282. <https://doi.org/10.1016/j.apsusc.2019.144282>
39. 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*, (2020) 992-1005. <https://doi.org/10.1002/jbm.a.36876>
40. S.B.R. Berton, G.A.M. de Jesus, R.M. Sabino, J.P. Monteiro, S.A.S. Venter, M.L. Bruschi, K.C. Popat, M. Matsushita, **A.F. Martins**, E.G. Bonafé, Properties of a commercial κ -carrageenan food ingredient and its durable superabsorbent hydrogels, *Carbohydrate Research*, (2020) 107883. <https://doi.org/10.1016/j.carres.2019.107883>
41. S. 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*, (2020) 112701. DOI: <https://doi.org/10.1016/j.indcrop.2020.112701>
42. 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*, (2020) 110258. DOI: 10.1016/j.msec.2019.110258