

Oswaldo H. Campanella

PhD 1987, University of Massachusetts, Food Engineering.

BS/MS (6-year degree), University of Buenos Aires, Chemical Engineering

Academic Experience: Purdue University

- Professor, Agricultural and Biological Engineering; 2005 – present. Full time.
- Associate Professor, Agricultural and Biological Engineering; 2002 – 2005. Full time.
- Assistant Professor, Agricultural and Biological Engineering, 1999 – 2002. Full time.

Other:

- Senior Lecturer, Massey University, Food Technology Department, 1992 – 1998.
- Lecturer, Massey University, Food Technology Department, 1990 – 1992.
- Research Associate, Argentina Research Council, 1989 – 1990.
- Postdoctoral Fellow, University of Massachusetts, 1983 – 1987.

Professional Organizations: Institute of Food Technologists; American Association of Cereal Chemists; American Institute of Chemical Engineers

Honors and Awards:

- Nomination for Potter Award for Excellence in Teaching 2017, 2018 – College of Engineering

Service Activities (past five years):

Internal

- Text, dates

External

- Editorial Boards – Journal of Food Processing Engineering, Food Engineering Reviews
- Reviewer – Carbohydrate Research; Cereal Chemistry; Critical Reviews in Food Science and Nutrition; Chemical Engineering Science; Chemical Engineering Progress; Food Hydrocolloids; Food Science and Technology International; Food Engineering Reviews; International Journal of Food Properties; International Dairy Journal; International Journal of Food Science and Technology; Innovative Food Science and Emerging Technologies; Journal of Food Science; Journal of Non-Newtonian Fluid Mechanics; Journal of Textures Studies; Journal of Food Processing Engineering; Journal of Food Engineering; Journal of Cereal Science; Langmuir; Polymer International; Rheologica Acta

Publications (past five years):

1. Abiad, M.G., Carvajal, M.T. and Campanella, O.H. 2013. The effect of spray drying conditions on the physicochemical properties and enthalpy relaxation of α -Lactose. *International Journal of Food Properties*, 17, 1303-1316.
2. Dennis, J.D, Kubal, T.D, Campanella, O.H, Son, S.F and Pourpoint, T.L. 2013. Rheological characterization of monomethylhydrazine gels. *Journal of Propulsion and Power*, 29(2), 313-320.
3. Janaswamy, S., Gill, K., Campanella, O.H. and Pinal, R. 2013. Organized polysaccharide fibers as stable drug carriers. *Carbohydrate Polymers*, 94, 209-215.
4. Kale, M., Hamaker, B.R. and Campanella, O.H. 2013. Alkaline extraction conditions determine gelling properties of corn bran arabinoxylans. *Food Hydrocolloids*, 31, 121-126.

5. Patel, B.K., Campanella, O.H. and Janaswamy, S. 2013. Impact of urea on the three-dimensional structure, viscoelastic and thermal behavior of iota-carrageenan. *Carbohydrate Polymers*, 92, 1873– 1879.
6. Santos, P.H.S., Campanella, O.H and Carignano, M.A. 2013. Effective attractive range and viscoelasticity of colloidal gels. *Soft Matters*, 9, 709-714.
7. Yang, Y., Campanella, O.H., Hamaker, B.R., Zhang, G.Y. and Gu, Z.B. 2013. Rheological investigation of alginate chain interactions induced by concentrating calcium cations. *Food Hydrocolloids*, 30(1), 26-32.
8. Bello-Perez, L.A., Flores-Silva, P.C., Agama-Acevedo, E., Figueroa-Cardenas, J.D. , Lopez-Valenzuela, J.A. and Campanella, O.H. 2014. Effect of the nixtamalization with calcium carbonate on the indigestible carbohydrate content and starch digestibility of corn tortilla. *Journal of Cereal Science*, 60, 421-425.
9. de la Pena, E., Manthey, F.A., Patel, B.K. and Campanella, O.H. 2014. Rheological properties of pasta dough during pasta extrusion: Effect of moisture and dough formulation. *Journal of Cereal Science*, 60, 346-351.
10. Demirkesen, I., Kelkar, S., Campanella, O.H., Sumnu, G., Sahin, S. and Okos, M. 2014. Characterization of structure of gluten-free breads by using X-ray microtomography. *Food Hydrocolloids*, 36, 37-44.
11. Demirkesen, I., Campanella, O.H., Sumnu, G., Sahin, S. and Hamaker, B.R. 2014. Study on staling characteristics of gluten-free breads prepared with chestnut and rice flours. *Food and Bioprocess Technology*, 7, 806-820.
12. Erickson, D.P., Renzetti, R., Jurgens, A., Campanella, O.H. and Hamaker, B.R. 2014. Modulating state transition and mechanical properties of viscoelastic resins from maize zein through interactions with plasticizers and co-proteins. *Journal of Cereal Science*, 60, 576-583.
13. Gilbert, J., Campanella, O. and Jones, O.G. 2014. Electrostatic stabilization of betalactoglobulin fibrils at increased pH with cationic polymers. *Biomacromolecules*, 15, 3119-3127.
14. Lee, S. and Campanella, O. 2014. Impulse viscoelastic characterization of wheat flour dough during fermentation. *Journal of Food Engineering*, 118, 266-270.
15. Yoon, C., Heister, S.D. and Campanella, O.H. 2014. Modeling gelled fluid flow with thixotropy and rheological hysteresis effects. *Fuel*, 128, 467-475.
16. Bhopatkar, D., Feng, T., Chen, F., Zhang, G.Y., Carignano, M., Park, S.H., Zhuang, H.N. Campanella, O.H. and Hamaker, B.R. 2015. Self-Assembled nanoparticle of common food constituents that carries a sparingly soluble small molecule. *Journal of Agricultural and Food Chemistry*, 63, 4312-4319.
17. Eren, N.M., Santos, P.H.S., and Campanella, O. 2015. Mechanically modified xanthan gum: Rheology and polydispersity aspects. *Carbohydrate Polymers*, 134, 475-484.
18. Eren, N.M., Jones, O.G. and Campanella, O.H. 2015. Changes in the rheology of nanostructured suspensions by adsorption of the protein alpha-lactalbumin on the surface of silica particles. *Rheologica Acta*, 54, 735-744.
19. Feng, T., Li, M., Zhuang, H., Chen, F., Ye, R., Campanella, O. and Fang, Z. 2015. Application of molecular dynamics simulation in food carbohydrate research - a review. *Innovative Food Science and Emerging Technologies*, 31, 1-13.
20. Klein, M.I., Hwang, G., Santos, P.H.S., Campanella, O.H. and Koo, H. 2015. Streptococcus mutans-derived extracellular matrix in cariogenic oral biofilms. *Frontiers in Cellular and Infection Microbiology*, 5, Article Number: 10, DOI: 10.3389/fcimb.2015.00010.
21. Wang, L.Q., Campanella, O., Patel, B., Lu, L. 2015. Preparation and Sealing Processing of Sodium Alginate Based Blending Film. *Mathematical Problems in Engineering*. Article Number: 895637. DOI: 10.1155/2015/895637.
22. Ayala-Soto, F., Campanella, O.H., Serna-Saldivar, S.O. and Welti-Chanes, J. 2016. Changes in the structure and gelling properties of maize fiber arabinoxylans after their pilot scale extraction and spray-drying. *Journal of Cereal Science*, 70, 275-281.

23. Campanella, O. H. 2016. Editorial overview: Food physics and material science. *Current Opinion in Food Science*, 9, vii-ix.
24. Chen, J., Miao, M., Campanella, O., Jiang, B., & Jin, Z. 2016. Biological macromolecule delivery system for improving functional performance of hydrophobic nutraceuticals. *Current Opinion in Food Science*, 9, 56-61.
25. Eren, N.M., Narsimhan, G and Campanella, O.H. 2016. Protein adsorption induced bridging flocculation: the dominant entropic pathway for nano-bio complexation. *Nanoscale*, DOI: 10.1039/C5NR06179B.
26. Feng, T., Zhu, X., & Campanella, O. 2016. Molecular modeling tools to characterize the structure and complexation behavior of carbohydrates. *Current Opinion in Food Science*, 9, 62-69.
27. Khalef, N., Campanella, O., and Bakri, A. 2016. Isothermal calorimetry: methods and applications in food and pharmaceutical fields. *Current Opinion in Food Science*, 9, 70- 76.
28. Kahn, J.L., Necla Mine Eren, N.M., Campanella, O.H., Voytik-Harbin, S.L. and Rickus, J.L. 2016. Collagen-fibril matrix properties modulate the kinetics of silica polycondensation to template and direct biomineralization. *Journal of Material Research*, DOI: 10.1557/jmr.2016.5.
29. Demirkesen, I., Puchulu-Campanella, E., Kelkar, S., Campanella, O.H., Sumnu, G. and Sahin, S. 2016. Production and characterisation of gluten-free chestnut sourdough breads. *Quality assurance and safety of crops & foods*, 8, 349-358.
30. Tarhan, O., Spotti, M.J., Schaffter, S., Corvalan, C.M. and Campanella, O.H. 2016. Rheological and structural characterization of whey protein gelation induced by enzymatic hydrolysis. *Food Hydrocolloids*, 61, 211-220.
31. Taylor, J.R.N., Taylor, J., Campanella, O.H. and Hamaker, B.R. 2016. Functionality of the storage proteins in gluten-free cereals and pseudocereals in dough systems. *Journal of Cereal Science*, 67, 22-34.
32. Spotti, M.J., Tarhan, O., Schaffter, S., Corvalan, C. and Campanella, O.H. 2016. Whey protein gelation induced by enzymatic hydrolysis and heat treatment: Comparison of creep and recovery behavior. *Food Hydrocolloids*, 63, 696-704.
33. Wang, L.Q., Ma, S.F., Jia, C., Patel, B., Campanella, O., You, L.Q., Yang, S.C., and Liu, D. 2016. The Effects of Calcium Propionate and Cinnamaldehyde on the Mechanical, Physical and Antimicrobial Properties of Composite Films Based on Potato Starch. *Journal of Biobased Materials and Bioenergy*, 10, 176-183.
34. Ye, F., Miao, M., Jiang, B., Campanella, O.H., Jin, Z, Zhang, T. 2017. Elucidation of stabilizing oil-in-water pickering emulsion with different modified maize starch-based nanoparticles. *Food Chemistry*, 229, 152-158.
35. Chen, G., Miao, M., Jiang, B., Jin, J., Campanella, O.H., Feng, B. 2017. Effects of high hydrostatic pressure on lipase from *Rhizopus chinensis*: I. Conformational changes, *Innovative Food Science & Emerging Technologies*, 41, 267-276.
36. Garcia-Lucas, K.A., Mendez-Lagunas, L.L., Rodriguez-Ramirez, J., Campanella, O.H., Patel, B.K., Barriada-Bernal, L.G. 2017. Physical properties of spray dried *Stenocereus griseus* pitaya juice powder. *Journal of Food Process Engineering*, 40, DOI:10.1111/jfpe.12470.
37. Guo, W., & Campanella, O. H. 2017. A Relaxation Model Based on the Application of Fractional Calculus for Describing the Viscoelastic Behavior of Potato Tubers. *Transactions of the ASABE*, 60, 259-264.
38. Brito-Oliveira, T.C., Bispo, M., Moraes, I.C.F., Campanella, O.H. Pinho, S.C. 2017. Stability of curcumin encapsulated in solid lipid microparticles incorporated in cold-set emulsion filled gels of soy protein isolate and xanthan gum. *Food Research International*, 102, 759-767.
39. Colantuono, A., Vitaglione, P., Ferracane, R., Campanella, O.H. and Hamaker, B.R. 2017. Development and functional characterization of new antioxidant dietary fibers from pomegranate, olive and artichoke by-products. *Food Research International*, 101, 155- 164.
40. Spotti, M. J. and Campanella, O.H. 2017. Functional modifications by physical treatments of dietary fibers used in food formulations. *Current Opinion in Food Science*, 15, 70-78.

41. Santos, P.H.S, Carignano, M.A. and Campanella, O.H. 2017. Effect of Shear History on Rheology of Time-Dependent Colloidal Silica Gels. *Gels*, 3(4), doi:10.3390/gels3040045
42. Xu, E., Wu, Z., Jin, Z. and Campanella, O.H. 2018. Bioextrusion of Broken Rice in the Presence of Divalent Metal Salts: Effects on Starch Microstructure and Phenolics Compounds, *ACS Sustainable Chemistry & Engineering*, 6, 1, 1162-1171.
43. Desam, Li, J., Chen, G., Campanella, O. and Narsimhan, G. 2018. A mechanistic model for swelling kinetics of waxy maize starch suspension. *Journal of Food Engineering*, 222, 237-249.
44. Bouvier, J.M. and Campanella, O.H. 2014. Extrusion Processing Technology: Food and non-Food Biomaterials, J. Wiley.
45. Patel, B. and Campanella, O.H. 2015. Dough Processing: Sheeting, Shaping, Flattening and Rolling. In “Conventional and Advanced Food Processing Technologies”, Ed. S. Bhattacharya Ed., J. Wiley, pp 51-73.
46. Zhang, G., Bhopatkar, D., Hamaker, B.R and Campanella, O.H. 2015. Self-assembly of amylose, protein, and lipid as a nanoparticle carrier of hydrophobic small molecules. In “Nanotechnology and Functional Foods: Effective Delivery of Bioactive Ingredients”. IFT Press Series, pp 263-271.
47. Campanella O.H. 2016. Heat Treatment: Principles and Techniques. In: Caballero, B., Finglas, P., and Toldrá, F. (Eds.) *The Encyclopedia of Food and Health* vol. 3, pp. 316-327. Oxford: Academic Press.

Professional Development Activities (most recent)