Osvaldo H. Campanella
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Education

- University of Massachusetts, Amherst, Massachusetts, Food Engineering, Ph.D., 1987
- University of Buenos Aires, Buenos Aires, Argentina, Chemical Engineer Diploma (six years degree), 1978.

Professional Experience

- Professor in Food Engineering. Department of Food Science and Technology, The Ohio State University, 2019.
- Professor in Food Process Engineering, Department of Agricultural & Biological Engineering, Purdue University, 2005-2018
- Associate Professor in Food Process Engineering, Department of Agricultural & Biological Engineering, Purdue University, 2002 – 2005
- Assistant Professor in Food Process Engineering, Department of Agricultural & Biological Engineering, Purdue University, 1999 – 2002
- Senior Lecturer in Food Engineering, Food Technology Department Massey University, New Zealand, 1992-1998
- Lecturer in Food Engineering, Food Technology Department, Massey University, New Zealand, January 1990-1992
- Research Associate. Argentina Research Council (CONICET), 1989-1990
- Postdoctoral Fellow. University of Massachusetts, Amherst, MA, 1987-1989
- Research Assistant. University of Massachusetts, Amherst, 1983-1987.
- Research Assistant. Argentina Research Council (CONICET), 1979-1983

Research Experience

Professor Osvaldo H. Campanella has specialized in Food Engineering. He has worked on modeling the fluid-mechanics of coating flows and rheology of coating dispersions before obtaining a scholarship to carry out graduate studies at the University of Massachusetts in Food Engineering. On completion of his PhD, he worked as a postdoctoral fellow in the same University working in the characterization of food powders. In 1990, Professor Campanella was appointed in the Department of Food Technology, Massey University, New Zealand as a Lecturer and was promoted to the range of Senior Lecturers in the highest range of that position. He focused his research on Food Engineering, Heat Transfer Modeling, Food Extrusion and Rheology. Professor Campanella was appointed at Purdue University in 1999 where he continued working on areas of Rheology, Food Engineering and Thermal Processing. He is also actively involved in research related to new methods to characterize the formation of complex compounds using novel acoustic/ultrasound techniques. Professor Campanella has published more than 170 scientific articles related to rheology, extrusion, cereal processing, food engineering, thermal processing and physicochemical characterization of biomaterials. Professor Campanella was awarded the Best Engineering Teacher Award in Agricultural and Biological Engineering in 2000-2001; 2011-2012 and 2017-2018. In 2007, he was named Purdue University Scholar, a distinction given to faculties that have shown excellence in research and teaching. Professor Campanella has been awarded twice (2008 and 2010) as one the faculties to receive grants for

more than one million dollars. In 2018, he received the Spotlight Educator from the College of Agriculture, Purdue University. Professor Campanella will move to the Department of Food Science and Technology at The Ohio State University in January 2019.

Memberships in Academic, Professional and Scholarly Societies

- Institute of Food Technologist (IFT) – Member at Large of the Food Engineering Division 2003-2007.
- American Association of Cereal Chemists (AACC)-Chairman of the Rheology Division
- American Institute of Chemical Engineers (AIChE)

Editorial Boards

- Cereal Chemistry 2003-2005 (Associate Editor)
- Journal of Food Processing Engineering (Associate Editor)
- Food Engineering Reviews (Associate Editor)

Journal Referee

- 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

Awards

- Best Engineering Teacher College of Engineering, 1999-2000
- Best Engineering Teacher College of Engineering 2011-2012
- Best Engineering Teacher College of Engineering 2017-2018
- Chair of the Rheology Division, American Association of Cereal Chemists
- Purdue University Research Scholar 2007-2012
- Purdue Faculty Seed for Success Award 2010
- Nomination for Potter Award for excellence in Teaching 2017 – College of Engineering

- Nomination for Potter Award for excellence in Teaching 2018 – College of Engineering
- Spotlight Educator 2018 - College of Agriculture.

Presentations

Dr Campanella has more than 250 presentations in Conferences (IFT, AACC, AIChE) and has given more than 50 plenary conferences in Latinomerica (Argentina, Chile, Mexico, Peru, Uruguay), Australia, Chile, China, England, France, New Zealand, Switzerland, Spain, Taiwan. He also holds several patents related to food and cereal products and processing.

Publications

1. Chen, G., Huang, K. Miao, M., Feng, B. and Campanella, O.H. 2018. Molecular Dynamics Simulation for Mechanism Elucidation of Food Processing and Safety: State of the Art. *Comprehensive Reviews in Food Science and Food Safety* (in press).
2. Yuksel, F. and Campanella, O.H. 2018. Textural, rheological and pasting properties of dough enriched with einkorn, cranberry bean and potato flours, using simplex lattice mixture design. *Quality Assurance and Safety of Crops & Foods* (in press).
3. Fang, F., Tuncil, Y. E., Luo, X., Tong, X., Hamaker, B. R., & Campanella, O. H. 2019. Shear-thickening behavior of gelatinized waxy starch dispersions promoted by the starch molecular characteristics. *International Journal of Biological Macromolecules*, 121, 120-126.
4. Brito-Oliveira, T.C., Bispo, M., Moraes, I.C., Campanella, O.H. and Pinho, S.C. 2018. Cold-set gelation of commercial soy protein isolate: Effects of the incorporation of locust bean gum and solid lipid microparticles on the properties of gels. *Food Biophysics*, 1-14.
5. Chen, G., Miao, M., Jiang, B., Jin, J., Campanella, O. H., & Feng, B. 2018. Effects of high hydrostatic pressure on Rhizopus chinensis lipase: II. Intermediate states during unfolding. *Innovative Food Science & Emerging Technologies*, 45, 152-160.
6. Cheng, L., Feng, T., Zhang, B., Zhu, X., Hamaker, B., Zhang, H., & Campanella, O. 2018. A molecular dynamics simulation study on the conformational stability of amylose-linoleic acid complex in water. *Carbohydrate Polymers*, 196, 56-65.
7. Desam, G.P., Li, J., Chen, G., Campanella, O. and Narsimhan, G. 2018. Prediction of swelling behavior of crosslinked maize starch suspensions. *Carbohydrate Polymers*, 199, 331-340.
8. Desam, G. P., Li, J., Chen, G., Campanella, O., & Narsimhan, G. 2018. A mechanistic model for swelling kinetics of waxy maize starch suspension. *Journal of Food Engineering*, 222, 237-249.
9. Elegbede, J. L., Li, M., Jones, O. G., Campanella, O. H., & Ferruzzi, M. G. 2018. Interactions Between Flavonoid- Rich Extracts and Sodium Caseinate Modulate Protein Functionality and Flavonoid Bioaccessibility in Model Food Systems. *Journal of Food Science*, 83(5), 1229-1236.
10. Garcia-Amezquita, L. E., Tejada-Ortigoza, V., Campanella, O. H., & Welti-Chanes, J. 2018. Influence of Drying Method on the Composition, Physicochemical Properties, and Prebiotic Potential of Dietary Fibre Concentrates from Fruit Peels. *Journal of Food Quality*, 2018.

11. Kuang, L., Damayanti, N.P., Jiang, C., Fei, X., Liu, W., Narayanan, N., Irudayaraj, J., Campanella, O. and Deng, M. 2018. Bioinspired glycosaminoglycan hydrogels via click chemistry for 3D dynamic cell encapsulation. *Journal of Applied Polymer Science*, 47212.
12. Luciano, C.G., Valencia, G.A., Campanella, O.H., do Amaral Sobral, P.J. and Moraes, I.C.F. 2018. Influence of Extraction Method on the Rheological Properties of Jackfruit (Artocarpus heterophyllus) Seed Starch Dispersions. *Food Biophysics*, 13(2), 155-162.
13. Wang, L., Campanella, O., Patel, B., Ma, S., Liu, D., & Jia, C. 2018. Rheological Properties of Film-Forming Solutions and Mechanical Properties of Edible Composite Films Based on Sodium Alginate, Sodium Carboxymethyl Cellulose and Gelatin. *Journal of Biobased Materials and Bioenergy*, 12(1), 28-33.
14. Wu, B., Patel, B.K., Fei, X., Jones, O., Campanella, O.H. and Reuhs, B.L. 2018. Variations in physical-chemical properties of tomato suspensions from industrial processing. *LWT*, 93, 281-286.
15. Brito-Oliveira, T. C., Bispo, M., Moraes, I. C., 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.
16. 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.
17. Colantuono, A., Vitaglione, P., Ferracane, R., Campanella, O. H., & 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.
18. 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 dryed Stenocereus griseus pitaya juice powder. *Journal of Food Process Engineering*, 40, DOI:10.1111/jfpe.12470.
19. 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.
20. Xu, E., Wu, Z., Jin, Z., & Campanella, O. H. 2017. 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.
21. 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.
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 odulate 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. 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.
35. Eren, N.M., Santos, P.H.S., and Campanella, O. 2015.Mechanically modified xanthan gum: Rheology and polydispersity aspects. *Carbohydrate Polymers*, 134, 475-484.
36. Eren, N.M., Jones, O.G. and Campanella, O.H. 2015. Changes in the rheology of nano-structured suspensions by adsorption of the protein alpha-lactalbumin on the surface of silica particles. *Rheologica Acta*, 54, 735-744.
37. 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.

38. 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.
39. 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.
40. 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.
41. 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.
42. 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.
43. 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.
44. 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.
45. Gilbert, J., Campanella, O. and Jones, O.G. 2014. Electrostatic stabilization of beta-lactoglobulin fibrils at increased pH with cationic polymers. *Biomacromolecules*, 15. 3119-3127.
46. Lee, S. and Campanella, O. 2014. Impulse viscoelastic characterization of wheat flour dough during fermentation. *Journal of Food Engineering*, 118, 266-270.
47. Yoon, C., Heister, S.D. and Campanella, O.H. 2014. Modeling gelled fluid flow with thixotropy and rheological hysteresis effects. *Fuel*, 128, 467-475.
48. 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.
49. Dennis, J.D, Kubal, T.D, Campanella, O.H, Son, S.F and Pourpoint, T.L. 2013. Rheological characterization of monomethylhydrazine gels. J*ournal of Propulsion and Power*, 29(2), 313-320.
50. Janaswamy, S., Gill, K., Campanella, O.H. and Pinal, R. 2013. Organized polysaccharide fibers as stable drug carriers. Carbohydrate Polymers, 94, 209-215.
51. 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.

52. 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.
53. 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.
54. 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.
55. Chen, G. and Campanella, O.H. 2012. An optimization algorithm for estimation of microbial survival parameters during thermal processing. *International Journal of Food Microbiology*, 154, 52-58.
56. Erickson, D.P., Campanella, O.H. and Hamaker, B.R. 2012. Functionalizing maize zein in viscoelastic dough systems through fibrous, ß-sheet-rich protein networks: An alternative, physicochemical approach to gluten-free breadmaking. Trends in Food Science and Technology, 24, 74-81.
57. Fevzioglu, M., Hamaker, B.R. and Campanella, O.H. 2012. Gliadin and zein show similar and improved rheological behavior when mixed with high molecular weight glutenin. *Journal of Cereal Science*, 55, 265-271.
58. Goodall, Morgan A., Campanella, Osvaldo H., Ejeta, Gebisa and Hamaker, B.R. 2012. Grain of high digestible, high lysine (HDHL) sorghum contains kafirins which enhance the protein network of composite dough and bread. *Journal of Cereal Science*, 56, 352-357.
59. Mejia, C., Gonzalez, D., Mauer, L., Campanella, O. and Hamaker, B. 2012. Increasing and stabilizing ß-sheet structure of maize zein causes improvement in its rheological properties, *Journal of Agricultural and Food Chemistry*, 60, 2316-2321.
60. Rumpagaporn, P., Kaur, A., Campanella, O.H., Patterson, J.A. and Hamaker, B.R. 2012. Heat and pH stability of alkali-extractable corn arabinoxylan and its xylanase-hydrolyzate and their viscosity behavior. *Journal of Food Science*, 77(1), H23-H30
61. Santos, P.H.S., Bhopatkar, D. and Campanella, O.H. 2012. Rheological characterization of bio-based materials. *Chemical Engineering Progress*, 108(5), 56-62.
62. Yu, J., Santos, P. H. S. and Campanella, O. H. 2012. A study to characterize the mechanical behavior of semisolid viscoelastic systems under compression chewing - case study of agar gel. *Journal of Texture Studies*, 43, 459-467.
63. Arnold, R., Santos, P.H.S., Campanella, O.H. and Anderson, W.E. 2011. Rheological and thermal behavior of gelled hydrocarbon fuels. *Journal of Propulsion and Power*, 27(1), 151-161.
64. Chen, G., Peleg, M. and Campanella, O.H. 2011. Calculation of the total lethality of conductive heat in cylindrical cans sterilization using linear and non-linear survival kinetic models. *Food Research International*, 44(4), 1012-1022.
65. Chen. G., Campanella, O.H. and Barbosa-Canovas, G.V. 2011. Estimating microbial survival parameters under high hydrostatic pressure. *Food Research International*, 46, 314-320.

66. Dechelette, A., Campanella. O., Corvalan, M. Sojka, P.E. 2011. An experimental investigation on the breakup of surfactant-laden non-Newtonian jets. *Chemical Engineering Science*, 66, 6367-6374.
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72. Abiad, M.G., Campanella, O.H. and Carvajal, M.T. 2010. Assessment of thermal transitions by dynamic mechanical analysis (DMA) Using a novel disposable powder holder. *Pharmaceutics*, 2, 78-90; Open access Journal, oi:10.3390/pharmaceutics2020078, 78-90.
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76. Gonzalez D.C., Khalef, N., Wright, K., Okos, M.R., Hamaker, B.R. 2010. Physical aging of processed fragmented biopolymers. *Journal of Food Engineering*, 100(2), 187-193.
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amylose, protein, and free fatty acids. *Journal of Agricultural and Food Chemistry*, 58(16), 9164-9170.

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