

# M. FERNANDA SAN MARTIN-GONZALEZ

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## GENERAL INFORMATION

### Academic Experience

Degree Received	Institution	Date
Ph. D. Engineering Science	Washington State University, Pullman, WA	2002
B. Sc. Food Engineering	Universidad de las Americas-Puebla, Mexico	1997

### Professional Experience

Position	Department	Institution	Dates
Associate Professor	Food Science	Purdue University	07/2014 – Present
Assistant Professor	Food Science	Purdue University	01/2008 – 06/2014
Visiting Scientist / Research Associate	Food Science	University of Tennessee	08/2006 - 08/2007
Assistant Professor	Food and Chemical Engineering	Universidad de las Americas Puebla, Mexico	08/2003 - 12/2007

### Industry Experience

Position	Company	Location	Dates
Laboratory Manager	Cargill Meat Solutions	Plainview, TX	01/2003 - 08/2003
Technical Services Trainee	Cargill Meat Solutions	Plainview, TX	06/2002 - 01/2003
Quality Assurance Assistant Manager	GRUMA	Chalco, Mexico	05/1997 - 12/1997
Training Supervisor	Kerry Ingredients	Irapuato, Mexico	02/1997 - 05/1997

### Honors and Awards

2004 Candidate to National Researcher from the Mexican Council of Science and Technology (CONACyT). Three-year award.

1998 Scholarship from the Mexican National Council of Science and Technology (CONACyT) for Doctoral Studies

### **Membership in Professional Societies**

2000 – Present Institute of Food Technologists (IFT)

2009 – Present International Society of Food Engineering (ISFE)

### **Peer-reviewed Publications:**

1. Nguyen, E., Jones, O., Kim, B., **San Martin, F.** and Liceaga, A. 2016. Impact of microwave-assisted enzymatic hydrolysis on functional and antioxidant properties or rainbow trout (*Oncorhynchus mykiss*) by-products. *Fisheries Science*. In press.
2. Ho, K.K.H.Y., Schroen, K., **San Martin-Gonzalez, M.F.** and Berton-Carabin, C.C. 2016. Physicochemical stability of lycopene-loaded emulsions stabilized by plant or dairy proteins. *Food Structure*, <http://dx.doi.org/10.1016/j.foostr.2016.12.001>
3. Chandrasekar, V., **San Martin-Gonzalez, M.F.** and Ballard, T. 2015. Optimizing microwave-assisted extraction of phenolic antioxidants from Red Delicious and Jonathan apple pomace. *Journal of Food Process Engineering*. 38 (6), 571-582.
4. Ho, K.K.H.Y., Liceaga, A., Ferruzzi, M.G. and **San Martin-Gonzalez, M.F.** 2015. Microwave assisted extraction of lycopene in tomato peels: effect of extraction conditions on all-trans and cis- isomer yields. *LWT Lebensmittel-Wissenschaft und Technologie*. 62(1):160-168.
5. Coronel-Aguilera, C. and **San Martin-Gonzalez, M.F.** 2015. Encapsulation of spray dried beta-carotene emulsion by fluidized bed coating technology. *LWT Lebensmittel-Wissenschaft und Technologie*. 62(1):187-193.
6. Malaypally, S.P., Liceaga, A.M., Kim, K.H., Ferruzzi, M., **San Martin, M.F.** and Goforth, R. 2014. Influence of molecular weight on intracellular antioxidant activity of invasive silver carp (*Hypophthalmichthys molitrix*) protein hydrolysates. *Journal of Functional Foods*. 18:1158-1166.
7. Bello, Flores, C.A., Nuñez-Santiago, M.C., San Martin-Gonzalez, M.F., BeMiller, J.N. and Bello-Perez, L.A. 2014. Preparation and characterization of octenylsuccinylated plantain starch. *International Journal of Biological Macromolecules* 70:334-339.
8. Phoon, P.Y.\* , **San Martin-Gonzalez, M.F.\*** and Narsimhan, G.# 2014. Effect of hydrolysis and fibril formation of soy beta-conglycinin on the oxidative stability of O/W emulsions. *Food Hydrocolloids* 35:429-443.
9. Phoon, P.Y.\* , Paul, L.N., Burgner II, J.W., Narsimhan, G. and **San Martin-Gonzalez, M.F.\*#** 2014. Effect of cross-linking of interfacial sodium caseinate by natural processing on the oxidative stability of oil-in-water (O/W) emulsions. *Journal of Agricultural and Food Chemistry* 62(13):2822-2829.
10. Cardoso-Ugarte, G.A.\* , Sosa-Morales, M.E., Ballard, T., Liceaga, A. and **San Martin-Gonzalez, M. F.\*#** 2014. Microwave-assisted extraction of betalains from red beet (*Beta vulgaris*). *LWT Lebensmittel-Wissenschaft-und-Technologie* 59(1):276-282.
11. Duarte-Gómez, E.E.\* , Paxon, B., Budzik, M., Morgan, M.T., Applegate, B.M.\* and **San Martin-Gonzalez, M.F.\*#** 2014. High pressure effects on bacterial bioluminescence. *LWT Lebensmittel-Wissenschaft-und-Technologie* 56(2):484-493.

12. Avila-Reyes, S.V., Garcia-Suarez, F.J., Jiménez, M.T., San Martín-González, M.F. and Bello-Perez, L.A. 2014. Protection of *L. rhamnosus* by spray drying using two prebiotic colloids to enhance the viability. *Carbohydrate Polymers*. 102:423-430.
13. Phoon, P.Y., Narsimhan, G. and San Martín-González, M.F. 2013. Effect of thermal behavior of  $\beta$ -lactoglobulin on the oxidative stability of menhaden oil-in-water emulsions. *Journal of Agricultural and Food Chemistry* 61(8):1954-1967.
14. Serrano-Niño, J.C., Cavazos-Garduño, A., Hernández-Becerra, J.A., Beristain, C.I., Applegate, B., Ferruzzi, M.G., San Martín-González, M.F. and García, H.S. 2013. Retention of aflatoxin M-1 by probiotic bacteria in buffer and milk. *Food Control* 31:202-207.
15. Hnosko, J., San Martín-González, M.F. and Clark, S. 2012. High pressure processing inactivates *Listeria innocua* yet destroys Queso Fresco crumbling properties. *Journal of Dairy Science*. 95(9):4851-4862.
16. Patel, M. and San Martín-González, M.F. 2012. Characterization of ergocalciferol loaded solid lipid nanoparticles. *Journal of Food Science* 77(1):N8-N13.
17. Salazar-Gonzalez, C., San Martín-Gonzalez, M.F., Lopez-Malo, A., and Sosa-Morales, M.E. 2011. Recent studies related to microwave processing of fluid foods. *Food and Bioprocess Technology* 5:31-46.
18. Scheffler, S., Wang, X., Lei, H., San Martín-González, F. and Yao, Y. 2010. Phytoglycogen Octenyl Succinate, an amphiphilic carbohydrate nanoparticle, and Epsilon-polylysine to Improve Lipid Oxidative Stability of Emulsions. *Journal of Agricultural and Food Chemistry*. 58:660-667.
19. San Martín-González, M. F.\*, Roach, A. and Harte, F. 2009. Rheological properties of corn oil emulsions stabilized by commercial micellar casein and high pressure homogenization. *LWT Lebensmittel-Wissenschaft-und-Technologie*. 42(1):307-311.
20. Harte, F.M., Montes, C., Adams, M. and San Martín-González, M.F. 2007. Solubilized micellar calcium Induced low methoxyl-pectin aggregation during milk acidification. *Journal of Dairy Science*. 90(6):2705-2709.
21. López-Malo, A., Barreto-Valdivieso, J., Palou, E. and San Martín, M. F. 2007. *Aspergillus flavus* growth response to individual and combined mixtures of cinnamon extract and sodium benzoate. *Food Control*. 18(11):1358-1363.
13. San Martín, M.F., Sepúlveda, D.R., Góngora-Nieto, M.M., Altunakar, B., Swanson, B. G. and Barbosa-Cánovas, G.V. 2007. Evaluation of selected mathematical models to predict the inactivation of *Listeria innocua* by pulsed electric fields. *LWT Lebensmittel-Wissenschaft und Technologie*. 40(7):1271-1279.
14. San Martín, M.F., Rodríguez, J.J., Gurrám, S., Clark, S., Swanson, B.G., Barbosa-Cánovas, G.V. 2007. Yield, composition and rheological characterization of Cheddar cheese made with high pressure processed milk. *LWT Lebensmittel-Wissenschaft und Technologie*. 40(4):697-705.
15. San Martín, M.F., Welti-Chanes, J. and Barbosa-Cánovas, G.V. 2006. Cheese manufacture assisted by high pressure. *Food Reviews International*. 22(3): 275-289.

## **Book Chapters**

1. Baggs, C., Hastock, H., San Martin-Gonzalez, F. and Mauer, L. The principles of Food Science. Chapter 2 In: Applied Culinology, Research Chef Association, 2016. John Wiley and Sons.
2. San Martin-Gonzalez, M.F. Solid Lipid Nanoparticles with applications. Chapter 14 In: Nano- and micro-scale vehicles for effective delivery of bioactive ingredients in functional foods. Sabliov, C., Chen, H. and Yada, R. 2015. Wiley-Blackwell.
3. Welti-Chanes, J., San Martín-González, M. F., Guerrero-Beltrán, J. A., Barbosa-Cánovas, G. V. Water and Biological Structures at High Pressure. *In* Water Properties of Food, Pharmaceutical and Biological Materials, Buera, P., Welti-Chanes, J., Lillford, P. and Corti, H. (Eds). 2005. CRC Press.

### **Research Grants**

1. Purdue University AgSEED College of Agriculture. Purdue's action to engage Indiana's farmers, food and beverage industry through education and research. PI: San Martin (Co-PI: Farkas, Mohsen) 03/16 to 06/18. \$ 75,000.
2. USDA-National Institute of Food and Agriculture (NIFA). Functionalized lipid nanoparticles as delivery vehicles for natural antimicrobials in cut leafy vegetables. PI: San Martin (Co-PI: Applegate, Youngblood, Peer) 01/11 to 12/14. \$ 404,000
3. Conserves France. Impact of traditional and novel processing methods on quality of high value shelf stable fruit products. PI: Ferruzi (Co-PI: San Martin) 12/11 to 12/13. \$ 120,124
4. Indiana Soybean Alliance. Soy Protein as an anti-oxidative encapsulant for delivery of bioactive lipids in aqueous medium. PI: Narsimhan (Co-PI: San Martin) 08/12 to 12/13. \$ 121, 013
5. Office of the Vice President for Research – Purdue. Magnetic Interfacial Shear Rheometer with Liquid-Liquid Langmuir trough. PI: San Martin. 12/13 to 05/14. \$ 78,000
6. USDA – Norman E. Borlaug International Science and Technology Fellowship Program. Use of nanoemulsions for encapsulation of hydrophobic bioactive compounds. PI: San Martin. 10/11 to 12/12. \$27,973

### **Graduate Students Advised (Completed)**

1. Rodríguez-Martínez, V. 2014. Development and characterization of functionalized and non-functionalized carvacrol-loaded nanoemulsions for the inactivation of *E. coli* O157:H7. Purdue University. Ph D.
2. Phoon, P. Y. 2011. Proteins as emulsifiers in retarding oil oxidation in an oil/water emulsion. Purdue University. Ph D.
3. Patel, M. R. 2012. Encapsulation and microwave technologies to preserve/improve quality of foods. Purdue University. Ph D.
4. Bakir, G. 2012. Quality characteristics of carrot puree processed by continuous flow microwave heating as compared to conventional heating. Purdue University. M.Sc.