

Carmen L. Gomes

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Education

Ph.D. in Biological & Agricultural Engineering - Emphasis in Food Engineering 2003-2010

Biological and Agricultural Engineering Department, Texas A&M University, College Station, TX.

Project: Radiosensitization Strategies for Enhanced E-beam Irradiation Treatment of Fresh Produce

Fundamentals of Engineering Exam- Passed - TEXAS April, 2007

B.S. in Food Engineering 1998-2002

Department of Food Engineering, Federal University of Vicosa, Vicosa, Brazil.

Graduated with honors

Undergraduate Scholarship 1999-2000

Biological and Agricultural Engineering Department, Texas A&M University, College Station, TX.

Undergraduate exchange student (sponsored by Fulbright Commission and Brazil's Ministry of Education).

Experience

Assistant Professor August 2010

Biological and Agricultural Engineering Department, Texas A&M University

Area of emphasis: Food Engineering

Research interests:

- Food safety and shelf-life extension of food products
- Development of colloidal dispersion and nanoemulsions/ nanoparticles for controlled release of active ingredients (i.e., antimicrobials, antioxidants and nutraceuticals) in food systems.
- Development of micro- and nanoencapsulation methods for food antimicrobials with applications in foods and biofilms.
- Improvement of nutrients bioavailability
- Diffusion mechanisms in different food systems.

Research Assistant 2003-2010

Biological and Agricultural Engineering Department, Texas A&M University

Project funded by the Army/CORANET in material testing and product shelf life characterization

Responsibilities: design and conduct experiments, data analysis and interpretation, prepare reports, and supervise graduate and undergraduate students

USDA/CSREES Projects on E-beam irradiation of fresh produce

Responsibilities: assist with development of research plan, sample preparation, data collection and analysis in a series of studies on different produce

Teaching Assistant Spring, 2008 and 2009

Biological and Agricultural Engineering Department

Food Science/AGSM-315: Food Engineering Technology

Responsibilities: Prepare and conduct lab sessions, grade lab reports and homework, have one-on-one tutorial sessions with students

Publications

PEER REVIEWED

- Han J, Gomes-Feitosa CL, Castell-Perez E, Moreira RG & Silva PF. 2004. Quality of packaged romaine lettuce hearts exposed to low-dose electron beam irradiation. *Lebensmittel-Wissenschaft Und-Technologie-Food Science and Technology* 37(7):705-715.
- Moreno M, Castell-Perez ME, Gomes C, Da Silva PF & Moreira RG. 2006. Effects of electron beam irradiation on physical, textural, and microstructural properties of "Tommy Atkins" mangoes (*Mangifera indica* L.). *Journal of Food Science* 71(2):E80-E86.
- Gomes C, Da Silva PF, Castell-Perez ME & Moreira RG. 2006. Quality and microbial population of Cornish game hen carcasses as affected by electron beam irradiation. *Journal of Food Science* 71(7):E327-E336.
- Moreno MA, Castell-Perez ME, Gomes C, Da Silva PF, Kim J & Moreira RG. 2007. Optimizing electron beam irradiation of "Tommy Atkins" mangoes (*Mangifera Indica* L.). *Journal of Food Process Engineering* 30(4):436-457.
- Moreno MA, Castell-Perez ME, Gomes C, Da Silva PF & Moreira RG. 2007. Quality of electron beam irradiation of blueberries (*Vaccinium corymbosum* L.) at medium dose levels (1.0-3.2 kGy). *Lwt-Food Science and Technology* 40(7):1123-1132.
- Gomes C, Da Silva P, Chimbombi E, Kim J, Castell-Perez E & Moreira RG. 2008. Electron-beam irradiation of fresh broccoli heads (*Brassica oleracea* L. italica). *LWT - Food Science and Technology* 41:1828-1833.
- Gomes C, Moreira RG, Castell-Perez ME, Kim J, Da Silva P & Castillo A. 2008. E-beam irradiation of bagged, ready-to-eat spinach leaves (*Spinacea oleracea*): An engineering approach. *Journal of Food Science* 73(2):E95-E102.
- Moreno MA, Castell-Perez ME, Gomes C, Da Silva PF, Kim J & Moreira RG. 2008. Treatment of cultivated highbush blueberries (*Vaccinium corymbosum* L.) with electron beam irradiation: Dosimetry and product quality. *Journal of Food Process Engineering* 31(2):155-172.
- Da Silva, P., Moreira, R.G. & Gomes, C. 2009. Effect of a de-oiling mechanism to produce high-quality vacuum fried potato chips. *Journal of Food Engineering*. 92(3):297-304.
- Gomes, C. , Castell-Perez, M.E., Chimbombi, E., Sun, D., Liu, D. , Sue, H-J, Sherman, P., Dunne, P., and Wright, A. O. 2009. Effect of oxygen absorbing packaging on the shelf-life of a liquid-based component of military operational rations . *Journal of Food Science*. 74(4): E167-E176.
- Gomes, C.; Da Silva, P.; Moreira, R. G.; Castell-Perez, E.; Ellis, E. A.; Pendleton, M. 2009. Understanding *E. coli* internalization in lettuce leaves for optimization of irradiation treatment. *International Journal of Food Microbiology*.135(3):238-247.
- Gomes, C.; Moreira, R. G.; Castell-Perez, E. 2010. Radiosensitization of *Salmonella* spp. and *Listeria* spp. in ready-to-eat baby spinach leaves. *Journal of Food Science*. 76 (1): E144-E148.
- Gomes, C.; Moreira, R. G.; Castell-Perez, E. 2011. Poly (DL-lactide-co-glycolide) (PLGA) nanoparticles with entrapped *trans*-cinnamaldehyde and eugenol for antimicrobial delivery applications. *Journal of Food Science*. 76 (2): N16-N24.

IN REVIEW

- Brasil, I.; Gomes, C.; Puerta-Gomez, A.; Castell-Perez, M.E.; Moreira, R.G. 2011. Freshness retention of minimally processed fruits using multilayered edible coating containing microencapsulated essential oil. *Journal of Food Science*. Accepted – in revision.

SUBMITTED

- Gomes, C.; Moreira, R. G.; Castell-Perez, E. 2011. Microencapsulated antimicrobial compounds as a means to enhance electron beam irradiation treatment of fresh produce. *Journal of Food Science*. Submitted.
- Gomes, C.; Castell-Perez, M. E.; Chimbombi, E.; Karagoz, I.; Hare, B.; Liang, Y-L; Sue, H-J.; Sherman, P.; Dunne, P.; Wright, A. O.; Yang, T. 2011. Quality of olive-oil reformulated MRE entrée. *Journal of Food Science*. Submitted.

NON-TECHNICAL PUBLICATIONS

- Burns, Robert. 2010. AgriLife Researchers find way to cut food-irradiation levels by half: method could result in safer, more nutritious fresh produce.
- Kern, Lauren. 2009. Advances in food safety. *Texas Engineering Magazine*

PATENT APPLICATIONS

- TAMUS 3050 - Patent disclosure - Improvement of Safety of Fresh and Fresh-Cut Fruits and Vegetables Using Natural Radiosensitizer - 2010
- TAMUS 3051 - Patent disclosure - Freshness Retention of Minimally Processed Fruits and Vegetables - 2010

ABSTRACTS PRESENTED AT INTERNATIONAL MEETINGS

- Han, J.; C.L. Gomes, P. Da Silva, E. Castell-Perez, and R. G. Moreira. 2004. Quality of packaged romaine lettuce hearts exposed to low-dose electron beam irradiation. IFT International Meeting - Las Vegas, NE.
- Moreno, M., C. Gomes-Feitosa, P. da Silva, E. Castell-Perez and R.G. Moreira. 2005. Effect of electron beam irradiation on quality of blueberries (*Vaccinium corymbosum* L.). IFT International Meeting, New Orleans, July 2005.
- Moreno, M., C. Gomes-Feitosa, P. da Silva, E. Castell-Perez and R.G. Moreira. 2005. Quality of mangoes (*Mangifera indica*) exposed to electron beam irradiation. IFT International Meeting, New Orleans, July 2005.
- Gomes, C., P. C. Da Silva, Castell-Perez, M.E., and Moreira, R.G. 2006. Quality of irradiated chicken meat. IFT International Meeting, Orlando, Florida, June.
- Gomes, C., Silva, P., Castell-Perez, E. and Moreira, R.G. 2007. Quality of baby spinach (*Spinacia oleracea* L.) exposed to low-dose electron beam irradiation. IFT International Meeting, Chicago, Illinois, July.
- Silva, P., Gomes, C., Chimbombi, E., Barros, F. Negi, S., Castell-Perez, E. and Moreira, R.G. 2007. Effects of low-dose electron beam irradiation and storage on quality of broccoli heads (*Brassica oleracea* L var Italica). IFT International Meeting, Chicago, Illinois, July.
- Gomes, C., Silva, P., Kim, J., Castell-Perez, E. Moreira, R. and Sanchez-Plata, M. 2008. Enhancing the killing effect of e-beam irradiation with radiosensitization strategies using modified atmosphere packaging (MAP). IFT International Meeting, New Orleans, Louisiana, July.
- Gomes, C., Castell-Perez, E. M., Liu, D., Sue, H-J. Meyer, C., Dunne, P. 2008. Oxygen-Absorbing packaging material to prolong shelf-life of oxygen sensitive meal-ready-to-eat (MRE) rations. IFT International Meeting, New Orleans, Louisiana, July.
- Gomes, C., Da Silva, P., Castell-Perez, M.E., Moreira, R.G., Sanchez-Plata, M.X., 2009. Antimicrobial activity of food-grade compounds against *Salmonella* spp. and *Listeria* spp. IFT International Meeting, Anaheim, CA, June. - selected for John C. Ayres Poster Competition - 2nd place.
- Gomes, C., Moreira, R.G., Castell-Perez, M.E. 2009. Does effectiveness of irradiation treatment depend on fresh produce variety? IFT International Meeting, Anaheim, CA, June. - selected for Nonthermal Processing Division (NPD) Graduate Student Paper Competition. Ranked among top five.
- Gomes, C., Castell-Perez, E. M., Liu, D., Sue, H-J. Meyer, C., Dunne, P. 2010. Oxygen-absorbing packaging to assure quality of olive-oil reformulated MRE entrees. IFT International Meeting, Chicago Illinois, July.

- Brasil, I., Gomes, C., Puerta-Gomez, A., Moreira, R. G., Castell-Perez, M. E. 2011. Freshness retention of minimally processed fruits using multilayered edible coating containing microencapsulated essential oil. IFT International Meeting, New Orleans, Louisiana, June.
- Gomes, C., Moreira, R. G., Castell-Perez, M. E. 2011. Microencapsulated antimicrobial compounds as a means to enhance electron beam irradiation treatment of fresh produce. IFT International Meeting, New Orleans, Louisiana, June.
- Martinon, M., Gomes, C., Moreira, R. G., Castell-Perez, M. E. 2011. Shelf-life extension of fresh-cut cantaloupe (*Cucumis melo* L.). IFT International Meeting, New Orleans, Louisiana, June.

Teaching

Graduate students

Laura Hill, Ph.D. student

Undergraduate students

Jecori Johnson – TAMUS LSAMP scholar

Seminars and guest lectures

BAEN 302, Biological and Agricultural Engineering Fundamentals II, invited by Dr. Karthi to talk on his class about Food Safety – 09/16/2010

PTIC (Polymer Technology Center) Consortium, Texas A&M University – 10/29/2010 –
Title: Extended Shelf Life Shell Eggs

Workshops for teaching enhancement

Offered by the Center for Teaching Excellence and University Writing Center:

- Lecturing Well Workshop
- Syllabus Workshop
- Talk It Up: The Art of Public Speaking
- Developing High Impact International Experiences for Students: How and Why
- Critical Thinking Workshop

Administrative and Service duties

Department committee assignments

- AGSM undergraduate program and recruiting
- Infrastructure

Science Café – organizer since 2008

Women in Science and Engineering (WISE) – member of directors since 2007

Society Membership and Awards

- 2009 - Ethel Ashworth-Tsutsui Memorial - Research Award Recipient
- 2006 - Bill & Rita Stout International Graduate Award - established to recognize outstanding achievement by international graduate students in Biological and Agricultural Engineering.
- Alpha Epsilon, the Honor Society of Agricultural, Food and Biological Engineering
- Gamma Sigma Delta, the Honor Society of Agriculture
- Phi Tau Sigma, the Honor Society of Food Scientists – President of TAMU Chapter - 2008
- Pinnacle National honor society, the non-traditional honor society

- Institute of Food Technologists (IFT) – since 2003
- American Society of Biological and Agricultural Engineers (ASABE) – since 2009