

## YEN-CON HUNG

**Professor and Research/Extension/Instruction Coordinator**  
**Department of Food Science and Technology**  
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### 1. ACADEMIC HISTORY

#### A. Education Background

B.E. 1977 National Taiwan Ocean University with major in seafood processing  
M.S. 1982 University of Minnesota with major in food science  
Ph.D. 1985 University of Minnesota with major in food science

#### B. Positions Held

Assistant Professor, Dept. of Food Sci. & Tech., UGA, 12/85 - 06/91  
Associate Professor, Dept. of Food Sci. & Tech., UGA, 07/91 - 06/97  
Visiting Associate Professor, Department of Marine Food Sci., National Taiwan Ocean Univ.,  
04/92 - 10/92  
Professor, Dept. of Food Sci. & Tech., UGA, 07/97 – 12/00  
Professor and Research/Extension/Instruction Coordinator, Dept. of Food Sci. & Tech., UGA,  
01/01 – present  
Adjunct Professor, College of Food Science and Technology, Shanghai Fishery University,  
06/07 – present

#### C. Awards and Honors

**IFT International Award** in 1991 as one of the five team members from the Univ. of Georgia  
for USAID Bean/Cowpea CRSP Collaborative Project with the Univ. of Nigeria.

**ASAE New Holland Young Researcher Award** in 1995.

**Professional Scientist Award** in 1997 from the Southern Regional Sections of Institute of  
Food Technologists

**Gamma Sigma Delta Senior Faculty Award** in 1998 from the University of Georgia

**Professional Achievement Award** in 1999 from the Chinese American Food Society

**Creative Research Medal** in 2002 from the University of Georgia for research on water  
Electrolysis

**Group Honor Award** as a member of the Northeast Multi-State Research Group NE179  
In 2003 from USDA-CSREES

**Fellow** in 2004 from the Institute of Food Technologists

**Academic Plaza award** in 2006 from the Japan Food Machinery Manufacturers Association

## **2. RESEARCH ACHIEVEMENTS**

Dr. Hung's research is focused on applying the fundamentals of engineering science to biological materials to ensure the high quality and safety of food products and has published over 90 scientific referred Journal articles. Freezing is an effective method of preservation that retains the quality of foods near their fresh state. Dr. Hung has done extensive research in modeling heat transfer during freezing and the effect of freezing on the quality of frozen foods. He has co-edited one book on "Quality in Frozen Food" and wrote 5 book chapters on food freezing. He was appointed as one of the two U.S. representatives to the Commission C2 (Food Science and Engineering) of the International Institute of Refrigeration (IIR, an international treaty organization) from 1991 to 1999. Due to his leadership abilities, he was elected as a Vice-President of Commission C2 in 1999 for a 4-year term and re-appointed to a second term until 2007. He also chaired the IFT (Institute of Food Technology) Refrigerated and Frozen Foods Division in 2002.

Dr. Hung started working on water electrolysis in 1997 as an environmental friendly alternative non-thermal treatment to ensure the safety of foods. Generated on-site, electrolyzed (EO) water is formed by electrolyzing a dilute sodium chloride solution (less than 0.1 %) that is subsequently separated into an acidic fraction and a basic fraction. EO water obtained from the anode side has a very strong bactericidal and virucidal effect. In the past seven years, Dr. Hung received over one million dollars in grants and contracts to support his EO water research. He has also published 24 scholarly-refereed scientific journal articles on his EO water research findings. He has been invited to give lectures on EO water at many International Conferences. He has filed an International patent application in 2003 on enhancing the properties of EO water and the technology has been licensed to a US company. Dr. Hung has also been invited to give a talk at the Japan Food Machinery Manufacturers Association annual convention in 2005 and 2006 on food safety and quality management systems (GAPa, GMPs, SSOPs, HACCP, ISO9001, and ISO23001) in the U.S.

## **3. PROFESSIONAL ACTIVITIES (selected)**

- 1992-07 Associate Editor. Transactions of the ASAE
- 1992-07 Associate Editor. Applied Engineering in Agriculture.
- 1999-07 V.P. of Commission C/2 (Food Science and Technology), International Institute of Refrigeration
- 2004-06 Councilor, Refrigerated and Frozen Foods division, Institute of Food Technologists
- 1986-07 Food Processing Committee, ASABE Food Process Engineering Institute
- 2006-08 Scientific Program Subcommittee of Institute of Food Technologists Annual Meeting Committee
- 2007-08 President, Chinese-American Academic and Professional Association in Southeastern United States

#### 4. PUBLICATIONS (Since 2005)

##### A. Chapters in Books

1. Su, Y., C. Liu and Y.-C. Hung. 2007. Electrolyzed water: principles and applications. In "New biocides Development: The Combined Approach of Chemistry and Microbiology." American Chemical Society. Washington, DC. Pp.309-322.

##### B. Refereed Journal Articles

1. Singh, A., Y.-C. Hung, M. Corredig, R. D. Phillips, M.S. Chinnan, and K. H. McWatters. 2005. Effect of milling method on selected physical and functional properties of cowpea (*Vigna unguiculata*) paste. *Int. J. Food Sci. & Tech.* 40:525-536.
2. Park, C.-M., Y.-C. Hung, C.-S. Lin and R. E. Brackett. 2005. Efficacy of electrolyzed water in inactivating *Salmonella* Enteritidis and *Listeria monocytogenes* on shell eggs. *J. Food Prot.* 68:986-990.
3. Tanaka, F., K. Morita, P. Mallikarjunan, Y.-C. Hung and G. O. I. Ezeike. 2005. Analysis of dielectric properties of soy sauce. *J. Food Eng.* 71:92-97.
4. Ayebah, B., Y.-C. Hung and J. F. Frank. 2005. Enhancing the bactericidal effect of electrolyzed water on *Listeria monocytogenes* biofilms formed on stainless steel. *J. Food Prot.* 68:1375-138.
5. Ayebah, B. and Y.-C. Hung. 2005. Electrolyzed water and its corrosiveness on various surface materials commonly found in food processing facilities. *J. Food Process Eng.* 28:247-264.
6. Huang, Y.-R., Y.-C. Hung and D.-F. Hwang. 2005. Application of electrolyzed oxidizing water on food industry. *Food Industries* 37(4):49-56.
7. Kim, C., Y.-C. Hung and S. M. Russell. 2005. Efficacy of electrolyzed (EO) water in the prevention and removal of fecal material attachment and its microbicidal effectiveness during simulated industrial poultry processing. *Poultry Sci.* 84:1778-1784.
8. Park, J.-Y., M. A. Plahar, Y.-C. Hung, K. H. McWatters and J.-B. Eun. 2005. Effect of saponins on the foam/flow properties of paste and physical characteristics of akara made from decorticated black-eyed cowpeas. *J. Sci. Food & Agri.* 85:1845-1851.
9. Huang, Y.-R., H.-S. Hsieh, S.-Y. Lin, S.-J. Lin, Y.-C. Hung and D.-F. Hwang. 2006. Application of electrolyzed oxidizing water on the reduction of bacterial contamination of seafood. *Food Control* 17:987-993.
10. Plahar, M. A., Y.-C. Hung, K. H. McWatters, R. D. Phillips and M. S. Chinnan. 2006. Effect of saponins on the physical characteristics, composition and quality of akara (fried cowpea paste) made from non-decorticated cream cowpeas. *Lebensmittel-Food Sci. & Tech.* 39:275-284.
11. Huang, Y.-R., Y.-C. Hung and D.-F. Hwang. 2006. Decontaminative effect of acidic electrolyzed water on fresh vegetable and fruit. *Food Industries* 38(2):31-40.
12. Huang, Y.-R., C.-Y. Shiau, Y.-C. Hung and D.-F. Hwang. 2006. Change of hygienic

- quality and freshness in tuna treated with electrolyzed water and carbon monoxide gas during refrigerated and frozen storage. *J. Food Sci.* 71:M127-M133.
13. Huse, H.L., Y.-C. Hung and K.H. McWatters. 2006. Physical and sensory characteristics of fried cowpea (*Vigna unguiculata L. Walp*) paste formulated with soy flour and edible coatings. *J. Food Quality* 29: 419-430.
  14. Plahar, M. A., Y.-C. Hung and K. H. McWatters. 2006. Improving the nutritional quality and maintaining consumption quality of akara using curdlan and composite flour. *International Journal of Food Science and Technology*. 41:962-972.
  15. Ayebah, B., Y.-C. Hung, C. Kim and J. F. Frank. 2006. Efficacy of electrolyzed water in the inactivation of planktonic and biofilm *Listeria monocytogenes* in the presence of organic matter. *J. Food Prot.* 69:2143-2150.
  16. Kim, C., and Y.-C. Hung. 2007. Development of response surface model of electrostatic spray system and its contributing parameters. *Applied Eng. Agric.* 50:583-690.
  17. Jarrard M. Jr., Y.-C. Hung, K. H. McWatters and R. D. Phillips. 2007. Effect of milling and preparation method on the physical properties and quality of moin-moin (steamed paste). *J. Food Sci.* 72(5):E243-248.
  18. Jarrard, M. Jr. and Y.-C. Hung. 2007. Milling of cowpea flour using cyclone assisted milling. *Applied Eng. Agric.* (Accepted)