



Curriculum Vitae Huey-Min Hwang

Education and Training

B.Sc. Biology National Taiwan Normal University, Taipei, Taiwan, R.O.C. (1975)
Ph.D. Microbiology University of Georgia, Athens, GA, U.S.A. (1985)
Postdoctoral: Microbial Ecology, Department of Microbiology University of Georgia, Athens, GA, U.S.A. (1986-1989)

Professional Appointments

Professor, Biology Department, Jackson State University (07/1999- Present)
Director, Environmental Science M.S. and Undergraduate concentration programs, Jackson State University (07/2003-present)
Associate Professor, Biology Department, Jackson State University (07/1994- 06/1999)
Assistant Professor, Biology Department, Jackson State University (01/1990- 06/1994)

Research Interests

Aquatic microbial ecology
Bioremediation
Renewable energy-biofuels
Aquatic photochemistry/Photoinduced toxicity and degradation
Nanotoxicology
Green biotechnology

Professional affiliations

The Society of Environmental Toxicology and Chemistry (member)

Mississippi Academy of Sciences (lifetime member)

Highlights of Professional Accomplishment

Outstanding Faculty honoree, Higher Education Appreciation Day Working for Academic Excellence (HEADWAE) Program, Mississippi State, 2002

Proposals Review Panel member, National Institutes of Health, MBRS (Score) and CSR Programs, 2002-2008

NSF's Merit Reviewer and proposal reviewer of NSF Chemistry of Life Processes program 2009-present

Member of Nature Publish Group, 2009-2010

Member of Mississippi Energy Policy Institute, August 2009-present

Board of Directors, Overseas Chinese Environmental Engineers and Scientists Association, 2009

Mississippi's Nutrient Technical Advisory Group, May 2010-present

Member of the DOE/USDA Biomass R&D Technical Advisory Committee, 2011-2013

Faculty of excellence (Biology), Jackson State University, 2014

Recent/Ongoing Research

NSF-CREST project. "Nanomaterials: a study of toxicity mechanism, bioaccumulation potential, and application for prediction modeling", 10/01/2008- 02/28/2016. Role: P.I. of the pilot project.

NSF-CREST project. "Toxicity of nanoparticles as a function of environmental factors: experimental studies and computational modeling", 03/01/2016-02/28/2021. Role: P.I. of the pilot project.

Refereed Publications (2010-present; *Correspondence author)

Kavitha Pathakoti, Lavanya Goodla, Manjunath Manubolu, Huey-Min Hwang*. 2017. "Nanoparticles and its potential application in agriculture, biological therapies, biomedical, pharmaceutical industry and food technology". Book chapter in "Emerging Issues and Challenges in Nanotechnology in Agricultural & Biological Engineering", (ed) Deepak K. Verma and Megh R. Goyal, Apple Academic Press, Inc., In press.

Xiaojia He*, Donee MacAliser, Winfred G. Aker, Huey-min Hwang. 2016. "Assessing the effect of different natural dissolved organic matters on the cytotoxicity of titanium dioxide nanoparticles with bacteria". Journal of Environmental Sciences. 48: 230-236.

Xiaojia He, Huey-Min Hwang*. 2016. "Nanotechnology in food science: Functionality, applicability, and safety assessment". Journal of Food and Drug Analysis. 24: 671-681.

Yinping Li, Jiefen Cui, Gaoli Zhang, Zhengkun Liu, Huashi Guan, Hueymin Hwang, Winfred G. Aker, Peng Wang*. 2016. "Optimization Study on the hydrogen peroxide pretreatment and production of bioethanol from seaweed *Ulva prolifera* biomass". *Bioresource Technology*. 214: 144-149.

Qiao, L., Li, Y., Chi, Y., Ji, Y., Gao, Y., Hwang, H., Aker, W.G., Wang, P.* 2016. "Rheological properties, gelling behavior and texture characteristics of polysaccharide from *Enteromorpha prolifera*". *Carbohydrate Polymers*. 136: 1307-1314.

Li, Y., Li, W., Zhang, G., Lü, X., Hwang, H., Aker, W.G., Guan, H., Wang, P.* 2016. "Purification and characterization of polysaccharides degradases produced by *Alteromonas sp.* A321". *International Journal of Biological Macromolecules*. 86: 96-104.

Xiaojia He, Winfred G. Aker, Miguel Pelaez, Yunfeng Lin, Dionysios D. Dionysiou, Huey-min Hwang*. 2016. "Assessment of nitrogen-fluorine-codoped TiO₂ under visible light for degradation of BPA: implication for field remediation". *Journal of Photochemistry and Photobiology: Chemistry*. 314: 81-92.

Xiaojia He, Sabrieon Sanders, Winfred G. Aker, Yunfeng Lin, Jessica Douglas, Huey-min Hwang*. 2016 "Assessing the effects of surface-bound humic acid on the phototoxicity of anatase and rutile TiO₂ nanoparticles in vitro", *Journal of Environmental Sciences*, 42: 50-60.

Li, Y., Huang, Z., Qiao, L., Gao, Y., Guan, H., Hwang, H., Aker, W.G., Wang, P.* 2015. "Purification and characterization of a novel enzyme produced by *Catenovulum sp.* LP and its application in the pre-treatment to *Ulva prolifera* for bio-ethanol production". *Process Biochemistry*. 50: 799-806.

Xiaojia He, Winfred G. Aker, Peter P. Fu, and Huey-Min Hwang*. 2015. "Toxicity of engineered metal oxide nanomaterials mediated by nano-bio-eco-interactions: A review and perspective". *Environmental Science: Nano*. 2: 564-582.

Xiaojia He, Luma Akil, Winfred G. Aker, Huey-Min Hwang, and Hafiz A. Ahmad*. 2015. "Trends in infant mortality in United States: A brief study of the southeastern states from 2005–2009". *International Journal of Environmental Research and Public Health* 12, 4908-4920; doi:10.3390/ijerph120504908

Xiaojia He, Winfred G. Aker, Ming-Ju Huang, John D. Watts, Huey-Min Hwang*. 2015. "Metal oxide nanomaterials in nanomedicine: applications in photodynamic therapy and potential toxicity". *Current Topics in Medicinal Chemistry*. PMID: 259619; 15(18): 1887-1900.

Xiao-lin Li, Hai-jin Mou, Huey-Min Hwang, Peng Wang*. 2014. "Red seaweed derived polysaccharides, a novel marine resource for bio-ethanol production". *Journal of Renewable and Sustainable Energy*. Doi: 10.1063/1.4880515

Xiaojia He, Huey-Min Hwang*. 2014. Chapter 1, "Engineered TiO₂ nanoparticles: their fate and effects in natural aquatic environments". Book chapter of "Titanium Dioxide: Chemical

Properties, Applications and Environmental Effects”. Nova Scientific Publisher, NY. pp. 1-20.

Xiaojia He, Winfred G. Aker, Jerzy Leszczynski, Huey-Min Hwang*. 2014. “Using a holistic approach to assess the impact of engineered nanomaterials”. *Journal of Food and Drug Analysis*. 22: 128-146.

Peter P. Fu*, Qingsu Xia, Huey-Min Hwang , Paresh C. Ray , Hongtao Yu. 2014. “Mechanism of nanotoxicity – generation of reactive oxygen species”. *Journal of Food and Drug Analysis*. 22: 64-75.

Xiaojia He, Huey-min Hwang, Winfred G. Aker, Peng Wang, Xiaolu Jiang*, Yunfeng Lin. 2014. “Synergistic combination of marine oligosaccharides and azithromycin against *Pseudomonas aeruginosa*”. *Microbiological Research*. 169: 759-767.

Xiaojia He, Winfred G. Aker, Huey-Min Hwang*. 2014. “An *in vivo* study on the photo-enhanced toxicities of S-doped TiO₂ nanoparticles to zebrafish embryos (*Danio rerio*) in terms of malformation, mortality, rheotaxis dysfunction, and DNA damage”. *Nanotoxicology*. 8(S1): 185-195.

Michael Quinones, Yazhou Zhang, Penelope Riascos, Huey-Min Hwang, Winfred G. Aker, Xiaojia He, Ruomei Gao*. 2014. “Effects of light energy and reducing agents on C60-mediated photosensitizing reactions”. *Journal of Photochemistry and Photobiology: Chemistry*. 90: 374-379.

Kavitha Pathakoti, Ming-Ju Huang*, John D. Watts, Xiaojia He, Huey-Min Hwang*. 2014. “Using experimental data of *Escherichia coli* to develop a QSAR model for predicting the photo-induced cytotoxicity of metal oxide nanoparticles”. *Journal of Photochemistry and Photobiology: B: Biology*. 130: 234-240.

Xiaolin Li, Yinping Li, Haijin Mou, Yan Gao, Hueymin Hwang, Peng Wang*. 2014. “The optimization of saccharification of desulfurated red seaweed derived polysaccharides and analysis of their composition”. *Preparative Biochemistry and Biotechnology*. 44: 40-55.

Kavitha Pathakoti, Shavonda Morrow, Changseok Han, Miguel Pelaez, Xiaojia He, Dionysios D. Dionysiou, Huey-Min Hwang*. 2013. “Photo-inactivation of *Escherichia coli* by sulfur and nitrogen-fluorine-codoped TiO₂ nanoparticles under solar simulated light and visible light irradiation”. *Environmental Science & Technology*. 47: 9988-9996.

Yinping Li, Jin Wang, Yuan Yu, Xiang Li, Xiaolu Jiang, Hueymin Hwang, Peng Wang*. 2013. “Profuction of enzymes by *Alteromonas sp.* A321 to degrade polysaccharides from *Enteromorpha prolifera*”. *Carbohydrate Polymers*. 98: 988-994.

Thabitha P. Dasari, Huey-Min Hwang*. 2013. “The effect of humic acids and sunlight on the cytotoxicity of engineered zinc oxide and titanium dioxide nanoparticles to a river bacterial assemblage”. *Journal of Environmental Sciences*. 25: 1925-1935.

Thabitha P. Dasari, Kavitha Pathakoti, Huey-Min Hwang*. 2013. "Determination of the mechanism of photoinduced toxicity of selected metal oxide nanoparticles (ZnO, CuO, Co₃O₄ and TiO₂) to *E. coli* bacteria". Journal of Environmental Sciences. 25: 882-888.

Xiaojia He*, Rong Li, Guiming Huang, Huey-min Hwang, Xiaolu Jiang. 2013. "Influence of marine oligosaccharides on the response of various biological systems to UV irradiation". Journal of Functional Food. 5: 858-868.

Kavitha Pathakoti, Huey-Min Hwang*, Xiaojun Wang and Winfred G. Aker. 2013. "Photoinduced toxicity of CdSe/ZnS Quantum dots with different surface coatings to *Escherichia coli*". International Journal of Nanotechnology. 10: 1093-1108.

Kavitha Pathakoti, Huey-Min Hwang*, Hong Xu, Zoraida P. Aguilar, Andrew Wang. 2013. "In vitro cytotoxicity of CdSe/ZnS Quantum dots with different surface coatings to human keratinocytes HaCaT cells". Journal of Environmental Sciences. 25: 163-171.

H-M. Hwang*, P.C. Ray, H. Yu and X. He. 2013. "Toxicology of designer/engineered metallic nanoparticles". Chapter 8, RSC Green Chemistry Book Series "Sustainable Preparation of Metal Nanoparticles: Methods and Applications". p. 190-212.

Yonggang Wang, Winfred G. Aker, Huey-min Hwang*, Clement G. Yedjou, Hongtao Yu, Paul B. Tchounwou. 2011. "A study of the mechanism of *in vitro* cytotoxicity of metal oxide nanoparticles using catfish primary hepatocytes and human HepG2 cells". Science of the Total Environment. 409: 4753-4762.

Hwang Huey-Min*, Ying Erbo, Rasulev Bakhtiyor, Puzyn Tomasz, and Leszczynski Jerzy. "Assessing *in vitro* cyto-toxicity of engineered metal oxides with a systematic approach". June 1-4, 2011. Proceedings of the 3rd International Symposium on Environmental Science and Technology, Donguan, China. pp. 83-88.

Tomasz Puzyn, Bakhtiyor Rasulev, Agnieszka Gajewicz, Xiaoke Hu, Thabitha P. Dasari, Andrea Michalkova, Huey-Min Hwang, Andrey Toropov, Danuta Leszczynska, and Jerzy Leszczynski*. 2011. "Using nano-QSAR to predict the cytotoxicity of metal oxide nanoparticles". Nature Nanotechnology. 6:175-178.

Hao Wu, Musabbir A. Saeed, Huey-Min Hwang, Shulin Zhao, Yi-Ming Liu and Md. Alamgir Hossain. 2011. "Application of capillary electrophoresis in anion binding studies: Complexation and separation of nitrate and nitrite by an azacryptan". Journal of Physical Chemistry. 24: 1-5.

Thabitha P. Dasari, Huey-Min Hwang*. 2010. "The effect of humic acids on the cytotoxicity of silver nanoparticles to a natural aquatic bacterial assemblage". Science of the Total Environment. 408: 5817-5823.

Erbo Ying, Huey-Min Hwang*. 2010. "In vitro evaluation of cytotoxicity of iron oxide nanoparticles with different coatings and different sizes in A3 human T lymphocytes". Science of the Total Environment. 408: 4475-4481.

Xueheng Zhao, Xiaoke Hu, Huey-Min Hwang*. "A study of the toxicity of parathion and major degradation products". 2010. International Journal of Environmental Engineering Science. 1: 49-56.

Xiaoke Hu, Sean Cook, Peng Wang, Huey-min Hwang*, Xi Liu, Quinton L. Williams. "*In vitro* evaluation of cytotoxicity of engineered carbon nanotubes in selected human cell lines". 2010. Science of the Total Environment. 408: 1812-1817.

Sean M. Cook, Winfred G. Aker, Bakhtiyor F. Rasulev, Huey-Min Hwang*, Jerzy Leszczynski, Jessica J. Jenkins, Vincent Shockley. 2010. "Choosing safe dispersing media for C60 fullerenes by using cytotoxicity tests on the bacterium *Escherichia coli*". Journal of Hazardous Materials: 176: 367-373.