

# Kang Mo Ku

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Updated Feb 6, 2018

## EDUCATION

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Ph. D. Crop Sciences, University of Illinois at Urbana-Champaign (UIUC), 2013.

M.S. Horticulture, Kyungpook National University (South Korea), 2008.

B.A. Agronomy, Kyungpook National University (South Korea), Summa Cum Laude, 2006.

## RESEARCH EXPERIENCE

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### **Assistant Professor in Division of Plant and Soil Sciences, West Virginia University (2015- )**

- Conducted experiments to improve health-promoting phytonutrients in food crops.
- Conducted experiments to improve biosafety/sensory quality of food crops.
- Evaluated pre-harvest stresses on postharvest food crop quality.

### **Postdoctoral Associate in Vegetable Physiological Genetics Lab, UIUC (2013-2015)**

- Evaluated produce safety: attachment mechanism of a human pathogenic virus on vegetables' leaves and tomatoes and their relationship with leaf surface chemistry.
- Value-added sustainable vegetable production in controlled environment.
- Evaluated cancer chemopreventive activity of different horseradish lines and USDA grades.
- Evaluated anthocyanin profile from colored corn for natural pigment—collaborated with Kraft food company.
- Established myrosinase assay for broccoli QTL mapping.

### **Research Assistant in Vegetable Physiological Genetics Lab, UIUC (2009-2013)**

- Profiled secondary metabolites of methyl jasmonate treated *Brassica* species and assessed quinone reductase (QR) detoxifying activity and postharvest quality of methyl jasmonate treated broccoli.
- Measured gene expression of glucosinolate biosynthesis and hydrolysis genes, and chlorophyll catabolism genes from broccoli using qRT-PCR during postharvest.
- Conducted *Miscanthus* transformation and tissue culture.

### **Researcher in Functional Metabolomics Lab, KonKuk University, South Korea (2008-2009)**

- Evaluated different chemicals and bioactivity between conventional grown green teas and shade grown green teas using LC/MS and GC/MS.
- Conducted metabolomic research using LC/MS and partial least squares regression approach to assess fermentation period and type of pu-er teas.

### **Research Assistant in Functional Plant Bioscience Lab, Kyungpook National University, South Korea (2006-2008)**

- Isolated QR inducing compounds from vegetables and medicinal plants.
- Identified QR inductive compounds using mass spectrometry.
- Screened anti-inflammatory and antioxidant activity from extract library.

### **TEACHING EXPERIENCE**

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- Taught PLSC 206 (Principles of Plant Sciences with lab, 96 students) at Fall semester, West Virginia University.
- Taught PLSC 490/790 (Teaching Practicum), West Virginia University.
- Volunteer Teaching Assistant for Greenhouse Management and Production HORT 341, Spring 2015, UIUC.
- Guest lecturer for Greenhouse Management and Production HORT 341, Mar 18 2015, UIUC
- Guest lecturer for Research Methods in Plant sciences, UIUC (HORT 505 online), Sep 18 2014.
- Guest lecturer for Horseradish Growers Conference, Collinsville, IL, Jan 30 2014.
- Teaching Assistant in Natural Product Chemistry Honors Program, Agrobiotechnology Education Center, Kyungpook National University (Spring semester of 2006 and 2007)  
Taught lab class: isolation of active compounds from medicinal plants for 20 students.

### **MENTORING EXPERIENCE**

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- Independent Study (HORT 495, CHEM 497, HONR 495) WVU (N=5).
- Summer Undergraduate Research Experience (SURE) 2016, West Virginia University, Two students.
- Mentor for Morgantown High School student in Environ Mentor, 2<sup>nd</sup> ranked in West Virginia State Competition.
- Mentor for graduate students in Dr. Juvik's and Dr. Wortman's Labs.
- Mentor for Summer International Internship Students in Department of Crop Science, University of Illinois, 2010, 2012-2014, taught basic experimental design, phytochemical extraction, and operation of analytical instruments including HPLC and GC. (3 Chinese, 2 Puerto Ricans, and 1 Taiwanese student).
- Mentor for a high school student for Summer Science Camp in Department of Crop Science, University of Illinois, 2011.

### **FELLOWSHIPS & AWARDS**

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1. Davis College Research Grant for undergraduate research (\$500), 2017.

2. WVU-School of Agriculture and Food Research Grant. **Kang Mo Ku** (PI) and Cangliang Shen (Co-PI). Survival and attachment mechanism of foodborne pathogens on various leafy green surfaces. (\$3,000).
3. WVU- Summer Undergraduate Research Experience. Mentoring two students (\$4,000), 2016
4. Daniel C. & Elizabeth D. Brown Faculty Development, West Virginia University (\$6,000), 2016
5. Travel Grants from Senate Research Committee, West Virginia University (\$800), 2016
6. Graduate Student Research Award, College of ACES (\$1,000), UIUC, 2014.
7. Department of Crop Sciences Awards, Eugene Boerner Awards (\$1,000), UIUC, 2012.
8. Travel Grants from American Society of Horticultural Science, 2012.
9. Travel Grants from Department of Crop Sciences in UIUC, 2012.
10. Travel Grants from American Society of Horticultural Science, 2011.
11. Boerner Fellowship for 4 years (\$40,000/year) from Crop Sciences, UIUC, 2009.
12. Research Poster Award from the Plant Resources Society of Korea “Chemopreventive activity of *Glycine soja*”, 2007.
13. Research Poster Award from the Korean Society of breeding Science. Korea. “Antioxidant activity of Cheongja and Aga soybean”, 2007.
14. The LG Scholarship during Master’s program (2 years, \$10,000), 2006.
15. Research Poster Award from the Plant Resources Society of Korea. “Chemopreventive activity of pepper leaves”, 2006.
16. 4<sup>th</sup> ranked in Venture Company Proposal Competition, Agrobiotechnology Education Center, Kyungpook National University, 2006.
17. Chancellor Award of Kyungpook National University in recognition of outstanding academic achievements, 2006.

## **PUBLICATIONS (Total 36 published papers)**

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\*Equally contributed.

1. Kim MJ, Simpson TJ, Chiu YC, Becker TM, Juvik JA, and **Ku KM**. Variation in essential mineral nutrients and nutritional value among Brassica vegetables. 2018. In preparation.
2. Skinner CR, Gigliotti JC, **Ku KM**, Tou JC. Potential Health Benefits and Safety of Apple Pomace for Human Consumption. *Nutritional Review*. 2018. Submitted.
3. Palma S, **Ku KM**, Juvik JA, Nguyen T, Feng H. Adhesion and removal of E. coli K-12 as affected by produce epicuticular wax composition, surface roughness, and produce and bacterial surface hydrophobicity. *Food Microbiology*. 2018. Submitted.
4. Zhang L, **Ku KM**. Biomarkers-based classification between green teas and decaffeinated green teas using gas chromatography mass spectrometer coupled with in-tube extraction (ITEX). *Food Chemistry*. 2018 Submitted.
5. Zucoloto M, **Ku KM\***, Kim MJ, Kushad, MM. Influence of 1-methylcyclopropene treatment on postharvest quality of scab (*Venturia inaequalis*) resistant apple cultivars. *Journal of Food Quality*. 2017. Article ID 5951041, 12 pages, <https://doi.org/10.1155/2017/5951041> [Link]

6. Frazie MD, Kim MJ, **Ku KM**. Health-promoting phytochemicals from 11 mustard cultivars at baby leaf and mature stages. *Molecules*, 22(10), 1749, 2017. doi:[10.3390/molecules22101749](https://doi.org/10.3390/molecules22101749) [Link]
7. Kim MJ, Chiu YC, and **Ku KM**. Glucosinolates, carotenoids, and vitamins E and K variation from selected kale and collard cultivars. *Journal of Food Quality*. 2017 Article ID 5123572, 8 pages, <https://doi.org/10.1155/2017/5123572> [Link]
8. Sim I, Suh DH, Do SG, Moon KH, Lee JH, **Ku KM**, Lee CH. Unraveling Metabolic Variation for Blueberry and Chokeberry Cultivars Harvested from Different Geo-Climatic Regions in Korea. *Journal of Agricultural Food Chemistry*. 65 (41), pp 9031–9040. 2017. DOI: 10.1021/acs.jafc.7b04065 [Link]
9. Lee YS, **Ku KM\***, Becker T, Juvik JA. Chemopreventive glucosinolate accumulation in various broccoli and collard tissues: microfluidic-based targeted transcriptomics for by-product valorization. *PLoS One*. 12(9): e0185112, 2017. <https://doi.org/10.1371/journal.pone.0185112> [Link]
10. Kim MJ, Chiu YC, Kim NK, Park HM, Lee CH, Juvik JA, and **Ku KM**. Cultivar specific changes in primary and secondary metabolites in pak choi (*Brassica rapa*, *Chinensis*. Group) by methyl jasmonate. *Journal of International Molecular Sciences*. 18(5), 1004, 2017. doi:10.3390/ijms18051004 [Link]
11. Chiu YC, Jenk MA, Richards-Babb M, Ratcliff BB, Juvik JA, **Ku KM**. Demonstrating the effect of surfactant on water retention of waxy leaf surfaces. *Journal of Chemistry Education*. 2016. doi: 10.1021/acs.jchemed.6b00546. [Link] [Tutorial Video]
12. **Ku KM**, Kim MJ, Jeffery EH, Kang Y-H, Juvik JA. Profiles of glucosinolates and their hydrolysis products, and quinone reductase inducing activity from 39 arugula (*Eruca sativa* Mill.) Accessions. *Journal of Agricultural Food Chemistry*. 64(34), 6524-6532, 2016. doi: 10.1021/acs.jafc.6b02750. [Link]
13. Fuzawa M, **Ku KM**, Palma-Salgado S, Nagasaka K, Feng H, Juvik JA, Sano D, Shisler J, and Nguyen T. Effect of leaf surface chemical properties on sanitizer efficacy of rotavirus. *Applied and Environmental Microbiology*. 2016. 82(20), 6214-6222 doi: 10.1128/AEM.01778-16 [Link]
14. **Ku KM**, Becker TM, Juvik JA. Transcriptome and metabolome analyses of glucosinolates in two broccoli cultivars following jasmonate treatment for the induction of glucosinolate defense to *Trichoplusia ni* (Hübner). *International Journal of Molecular Science*. 17(7), 1135 2016. doi:10.3390/ijms17071135. [Link]
15. Kim NK, Park HM, Lee J, **Ku KM**, Lee CH. Seasonal variations of metabolome and tyrosinase inhibitory activity of *Lespedeza maximowiczii* during the growth periods. *Journal of Agricultural Food Chemistry*. 63(38), 8631-8639, 2015. doi: 10.1021/acs.jafc.5b03566. [Link]

16. Zucoloto M, **Ku KM**, Kushad, MM, Sawwan J. Bioactive compounds and quality characteristics of five apples cultivars. *Ciência Rural*. 45(11), 1972-1979, 2015. <http://dx.doi.org/10.1590/0103-8478cr20141160>. [[Link](#)]
17. Lu L, **Ku KM\***, Sindy P-S, Storm A, Andrew P Storm, Feng H, Juvik JA, Nguyen TH. Influence of epicuticular properties on porcine rotavirus attachment for 24 salad vegetables. *PLoS One*. 10(7): e0132841, 2015. doi:10.1371/journal.pone.0132841. [[Link](#)]
18. **Ku KM**, Jeffery EH, Juvik JA, Kushad MM. Correlation of quinone reductase activity and allyl isothiocyanate formation in different genotypes and grades of horseradish roots. *Journal of Agricultural Food Chemistry*. 63(11), 2947-2955, 2015. doi: 10.1021/jf505591z. [[Link](#)]
19. **Ku KM**, Jeffery EH, Juvik JA. Exogenous methyl jasmonate treatment increases glucosinolate biosynthesis and quinone reductase activity in kale leaf tissue. *PLoS One* 9(8): e103407, 2014. [[Link](#)]
20. Dosz EB, **Ku KM\***, Juvik JA, Jeffery EH. Total myrosinase activity estimates in *Brassica* vegetable produce. *Journal of Agricultural Food Chemistry*. 62(32) 8094-8100, 2014. [[Link](#)]
21. **Ku KM**, Kim HS, Kim SK, Kang YH. Correlation analysis between antioxidant activity and phytochemicals in Korean colored corns using principal component analysis. *Journal of Agricultural Science*. 6(4), 2014. doi:10.5539/jas.v6n4p1 [[Link](#)]
22. Chen L, Hwang J-E, Choi B, **Gu KM**, Park Y, Kang YH. Antioxidant capacities and cytostatic effect of Korean red pepper (*Capsicum annuum* L): a screening and in vitro study. *Journal of the Korean Society for Applied Biological Chemistry* 57(1) 43-52, 2014. [[Link](#)]
23. **Ku KM**, Jeffery EH, Juvik JA. Optimization of glucosinolate biosynthesis using methyl jasmonate for human health promoting activity. *Journal of the Science of Food and Agriculture*. 94(10) 2090-2096, 2014 [[Link](#)]
24. **Ku KM**, Choi J-H, Kim HS, Kushad MM, Jeffery EH, Juvik JA. Methyl jasmonate and 1-methylcyclopropene treatment effects on quinone reductase induction activity and post-harvest quality of broccoli. *PLoS One*. 8(10):e77127, 2013. [[Link](#)]
25. **Ku KM**, Jeffery EH, Juvik JA. Influence of seasonal variation and methyl jasmonate mediated induction of glucosinolate biosynthesis influence quinone reductase activity of broccoli floret. *Journal of Agricultural Food Chemistry*. 61 9623-9631, 2013. [[Link](#)]
26. **Ku KM**, Juvik JA. Methyl jasmonate-mediated changes in flavonoid concentrations and antioxidant activity in broccoli florets and kale leaf tissues. *Hortscience*. 48(8) 996-1002, 2013. [[Link](#)]
27. **Ku KM**, Choi J-H, Kushad MM, Jeffery EH, Juvik JA. Pre-harvest methyl jasmonate treatment enhances cauliflower chemoprotective attributes without a loss in postharvest quality. *Plant Foods for Human Nutrition*. 68(2) 113-117, 2013. [[Link](#)]

28. Chen L, Hwang JE, **Gu KM**, Kim JE, Choi B, Son KS, Park Y, Kang YH. Comparative study of antioxidant effects of five Korean varieties red pepper (*Capsicum annuum* L.) extracts from various parts including placenta, stalk, and pericarp. Food Science and Biotechnology. 21: 712-721, 2012. [[Link](#)]
29. Kim HS, Jung JY, Kim HK, **Ku KM**, Sur JK, Park Y, Kang YH. Influences of meteorological conditions of harvest time on water-soluble vitamin contents and quality attributes of oriental melon. Protected Horticulture and Plant Factory. 20: 290-296, 2011 [[Link](#)]
30. Kim J, Choi JN, **Ku KM**, Kang D, Kim JS, Park JH, Lee CH. A correlation between antioxidant activity and metabolite release during the blanching of *Chrysanthemum coronarium* L. Bioscience, Biotechnology, and Biochemistry 75: 674-680, 2011. [[Link](#)]
31. **Ku KM**, Kang YH. Quinone reductase activity of *Capsicum annuum* leaves and isolation the active compounds. Journal of Korean Society for Applied Biological Chemistry 53: 709-715, 2010. [[Link](#)]
32. **Ku KM**, Choi JN\*, Kim JY, Kim JK, Yoo LG, Lee S, Hong YS, Lee CH. Metabolomics analysis reveals the compositional differences of shade grown tea (*Camellia sinensis* L.) Journal of Agricultural Food Chemistry 58: 418-426, 2010. [[Link](#)]
33. **Ku KM**, Kim JY\*, Park HJ, Liu KH, Lee CH. Application of metabolomics in the analysis of manufacturing type and composition changes of pu-erh tea during fermentation. Journal of Agricultural Food Chemistry 58: 345-352, 2010. [[Link](#)]
34. **Ku KM**, Kang YH. Antioxidant and quinone reductase inductive activity of various organs of pepper. Journal of Applied Biological Chemistry. 53: 31-36, 2010.
35. **Ku KM**, Kim BS, Kang YH. Antioxidant activity and quinone reductase inductive activity of pepper leaves in various leaf lengths of pepper leaves. Korean Journal of Horticultural Science & Technology. 28: 120-125, 2010.
36. Kim HS, **Ku KM**, Suh JK, Kang YH. Quinone reductase inductive activity and growth inhibitory effect against hepatoma cell of oriental melon extract. Protected Horticulture and Plant Factory. 18: 448-453, 2009.
37. **Ku KM**, Kim MN, Hong MJ, Jung YS, Kim JS, Lee IJ, Shin DH, Hwang YH, Kang YH. Antioxidant and QR inductive activity of novel functional soybean agakong3. Food Science and Biotechnology. 18: 634-629, 2009.
38. **Ku KM**, Kim HS, Kim BS, Kang YH. Antioxidant activities and antioxidant constituents of pepper leaves from various cultivars and correlation between antioxidant activities and antioxidant constituents. Journal of Applied Biological Chemistry. 52: 70-76, 2009.
39. **Ku KM**, Kim SK, Kang YH. Biologically active substances of corn silk and comparison of antioxidative activities by different assays. Korean Journal Plant Resources. 22: 323-329, 2009.

40. **Ku KM**, Chang YJ, Kim MG, Kim KU, Song KS, Kang YH. Cancer chemopreventive activity of the rhizome extract of *Alpinia officinarum*. Korean Journal of Pharmacognosy. 38: 95-99, 2007.

Ph. D. dissertation title: Enhancing human health promoting activity through the regulation of the methyl jasmonate mediated glucosinolate biosynthesis in *Brassica oleracea*. 2013. [[PDF](#)]

M. S. thesis title: Chemoprevention of pepper leaves and its functional constituents. 2008.

B. A. thesis title: Chemoprevention activity of newly bred soybean ‘Agakong’. 2006.

## INVITED SEMINARS

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1. “Glucosinolates biosynthesis of Brassica crops for human health promoting activity” Gyungsang National University in Jinju, South Korea, May 2 2017
2. “Glucosinolates biosynthesis of Brassica crops for human health promoting activity” National Institute of Horticultural and Herbal Science in Wonju, South Korea, May 8 2017
3. “Enhancing human health promoting activity through the regulation of the methyl jasmonate mediated glucosinolate biosynthesis in *Brassica oleracea*.” National Institute of Horticultural and Herbal Science in Suwon, South Korea, Apr 14 2014.
4. “Enhancing human health promoting activity through the regulation of the methyl jasmonate mediated glucosinolate biosynthesis in *Brassica oleracea*.” Daegu Haany University, in Gyeongsan-si, South Korea, Apr 24 2014.
5. “Enhancing human health promoting activity through the regulation of the methyl jasmonate mediated glucosinolate biosynthesis in *Brassica oleracea*.” Development of functional food using plant defense mechanism through Korea-England collaboration in Junju, South Korea, Apr 25 2014.
6. “Enhancing human health promoting activity through the regulation of the methyl jasmonate mediated glucosinolate biosynthesis in *Brassica oleracea*.” Kyungpook National University in Daegu, South Korea, Apr 28 2014.

## CONFERENCE PRESENTATIONS

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1. Simpson T, Chiu YC, Blythe J, **Ku KM**. An Allelopathy Experiment: a simple and inexpensive hands-on learning experience. Oral presentation. North American Colleges and Teachers of Agriculture. Accepted.
2. **Ku KM**, Lee YS, Becker T, Juvik JA. Chemopreventive glucosinolate accumulation in various broccoli and collard tissues: microfluidic-based targeted transcriptomics for by-product valorization. Glucosinolate 2017, Berlin, Germany, Sep 17-20 2017.
3. Chiu YC, Kim MJ, Kim NK, Park HM, Lee CH, Juvik JA, **Ku KM**. Cultivar specific changes in primary and secondary metabolites in pak choi (*Brassica rapa*, Chinensis. Group) by methyl jasmonate. American Society for Horticultural Science, Waikoloa, Hawaii, USA, Sep 19-22 2017.
4. Chiu YC, Kim MJ, Shen C, **Ku KM**. Difference in attachment of *Salmonella enterica* to waxy or glossy salad leaves. American Society for Horticultural Science, Waikoloa, Hawaii, USA, Sep 19-22 2017.



5. Chiu YC, **Ku KM**. Metabolites change under insect herbivory and exogenous MeJA application in ‘Red Russian’ kale. American Society for Horticultural Science, Waikoloa, Hawaii, USA, Sep 19-22 2017.
6. **Ku KM**, Chiu YC, Jenks MA, Juvik JA. Epicuticular wax on leaves of the rosette and inflorescence of lettuce. American Society for Horticultural Science, Atlanta, Georgia, USA, Aug 8 2016.
7. **Ku KM**, Kim MJ, Simpson T, Becker TM, Juvik JA. Variation in mineral composition among species of *Brassica* Crops. American Society for Horticultural Science, Atlanta, Georgia, USA, Aug 8 2016.
8. **Ku KM**, Chiu, YC, Jenks MA, Juvik JA. Demonstrating the Role of Plant Epicuticular Waxes in Water Retention on Leaf Surfaces Using Brassica Leafy Vegetables. American Society for Horticultural Science, Atlanta, Georgia, USA, Aug 8 2016.
9. Simpson T and **Ku KM**, Allelopathic effects of horseradish root extract on onion root, 13th Annual Undergraduate Research Day at the Capitol, Charleston, West Virginia, USA, Feb 25, 2016.
10. Becker TM, **Ku KM**, Juvik JA. Exploring the transcriptome of the glucosinolate/ myrosinase system in broccoli (*Brassica oleracea* var. *italica*). American Society for Horticultural Science, New Orleans, Louisiana, USA, Aug 5 2015.
11. Gardner A. **Ku KM**, Brown A, Juvik JA, Gas chromatography-based myrosinase activity and QTL mapping in broccoli (*Brassica oleracea* L. var. *Italica*). American Society for Horticultural Science, New Orleans, Louisiana, USA, Aug 5 2015.
12. **Ku KM** and Juvik JA. Screening glucosinolates, their hydrolysis products, and quinone reductase anticancer activity of the USDA arugula germplasm collection. American Society for Horticultural Science, New Orleans, Louisiana, USA, Aug 5 2015.
13. Lee YS, **Ku KM**, Juvik JA. Variations in glucosinolate contents and quinone reductase-inducing activities among florets, leaves, and roots of broccoli plants. American Society for Horticultural Science, New Orleans, Louisiana, USA, Aug 5 2015.
14. **Ku KM**, Lu L, Palma-Salgado S, Storm A, Feng H, Juvik JA, Nguyen T. Epicuticular physicochemical properties on porcine rotavirus attachment to 24 leafy green vegetables and tomatoes. American Society for Horticultural Science, New Orleans, Louisiana, USA, Aug 5 2015. (Oral presentation).
15. **Ku KM**, Lu L, Palma-Salgado S, Storm A, Feng H, Juvik JA, Nguyen T. Influence of epicuticular physicochemical properties on porcine rotavirus attachment to 24 salad vegetables. Fifth Annual Postdoctoral Research Symposium. Urbana, Illinois, USA, Feb 6 2015.
16. **Ku KM** and Juvik JA. Exogenous methyl jasmonate treatment increases glucosinolate biosynthesis and quinone reductase activity in kale leaf tissue. American Society for Horticultural Science, Orlando, Florida, USA, Jul 27-31 2014. (Oral presentation).
17. Gardner AM, **Ku KM**, Yousef GG, Brown AF, Juvik JA. QTL Analysis for the identification of loci controlling antioxidant capacity in *Brassica oleracea* L. Var. *Italica*. American Society for Horticultural Science, Orlando, Florida, USA, Jul 27-31 2014.
18. **Ku KM** and Juvik JA. Allelopathic effects of horseradish leaves. American Society for Horticultural Science, Orlando, Florida, USA, Jul 27-31 2014.
19. **Ku KM** and Juvik JA. Jasmonate application to broccoli plants reduce growth and survival of the insect herbivore, *Trichoplusia ni*. American Society for Horticultural Science, Orlando, Florida, USA, Jul 27-31 2014.



20. **Ku KM**, Juvik JA, and Kushad MM. Allelopathic effect of horseradish leaf. Fourth Annual Postdoctoral Research Symposium, Urbana, Illinois, USA Jan 31 2014.
21. **Ku KM**, Yousef GG, Guzman I, Grusak MA, Jeffery EH, Juvik JA, Jackson EW, Brown AF. QTL mapping for quinone reductase activity in broccoli with hepa1c1c7 cell lines. American Society for Horticultural Science, Palm Desert, California, USA, Jul 22-25 2013.
22. **Ku KM**, Choi JH, Kushad MM, Jeffery EH and Juvik JA. Health promoting effect and postharvest physiology of methyl jasmonate treated cauliflower, American Society for Horticultural Science, Miami, Florida, USA, Jul 31- Aug 3 2012.
23. **Ku KM** and Juvik JA. Optimum methyl jasmonate application for enhancing glucosinolate in broccoli florets, American Society for Horticultural Science, Miami, Florida, USA, Jul 31- Aug 3 2012.
24. **Ku KM** and Juvik JA. Methyl jasmonate application for enhancing glucosinolate and phenolics in kale, American Society for Horticultural Science, Miami, Florida, USA, Jul 31- Aug 3 2012.
25. **Ku KM** and Juvik JA. The Effect of field methyl jasmonate treatments on glucosinolate and phenolic concentrations in broccoli florets. American Society for Horticultural Science, Waikoloa, Hawaii, USA, Sep 25-28 2011.
26. **Ku KM**, Kim J, Lim CS, Kim JS, Yoon JH, Lee CH. Effect of different cultivated areas on antioxidant activity of *Chrysanthemum coronarium L.* and its antioxidant compounds Korean Society of Medicinal Crop Science, Choongju, South Korea, Nov 13-14 2008.
27. **Ku KM**, Kim SK, Kang YH. Biologically active substances of corn silk and comparison of antioxidant activities by various antioxidant assays. 6<sup>th</sup> Osong international bio-symposium. Cheong-ju, South Korea, Nov 1-2 2007.
28. **Ku KM**, Kim MN, Hwang YH, Kang YH. Functional compounds and antioxidant activity comparison between Agakong4 Cheongjakong. 6<sup>th</sup> Osong international bio-symposium. Cheong-ju, South Korea, Nov 1-2 2007.
29. **Ku KM**, Kim MN, Kim HS, Hwang JE, Jang GS, Kwon TR, Kim BS, Kang YH. Determination antioxidant activity and vitamin c contents from various pepper leaves. 6<sup>th</sup> Osong international bio-symposium. Cheong-ju, South Korea, Nov 1-2 2007.
30. **Ku KM**, Kim MN, Kim HS, Hwang JE, Jang GS, Kwon TR, Kim BS, Kang YH. Quinone reductase inducing activity from various pepper leaves. 6<sup>th</sup> Osong international bio-symposium. Cheong-ju, South Korea, Nov 1-2 2007.
31. **Ku KM** and Kang YH. Quinone reductase inductive activity of *Glycyrrhiza uralensis*. 13<sup>th</sup> international symposium & Conference of the Plant Resources society of Korea. Kyungpook National University, Daegu, South Korea, Nov 16-17 2006.
32. **Ku KM**, Kim HS, Kwak JA, Lee HM, Kang YH. Quinone reductase inductive activity of *Artemisia capillaries* Thunb. 13<sup>rd</sup> international symposium & Conference of the Plant Resources society of Korea. Kyungpook National University, Daegu, South Korea, Nov 16-17 2006.
33. **Ku KM** and Kang YH. Quinone reductase inductive activity of *Glycyrrhiza uralensis*. 13<sup>rd</sup> international symposium & Conference of the Plant Resources society of Korea. Kyungpook National University, Daegu, South Korea, Nov 16-17 2006.
34. **Ku KM**, Hwang YH, Kang YH. Screening of cancer chemopreventive activity from edible crops using murine hepatoma cell line. 13<sup>rd</sup> international symposium & Conference of the Plant Resources society of Korea. Kyungpook National University, Daegu, South Korea, Nov 16-17 2006.

35. **Ku KM**, Kim MG, Kang YH. Quinone reductase inductive effects of Korean herbal medicines. 3<sup>rd</sup> China-Korea-Japan joint symposium on pharmacognosy. Hangzhou, China, Nov 2-4 2006.
36. Kang YH, **Ku KM**, Jang YJ. Quinone reductase inductive effects of *Alpinia officinarum*. International Conference on "Molecular and Physiological Effects of Bioactive Food Compounds, Food and Chemical Toxicology, Vienna, Austria, Oct 11-14 2006.
37. **Ku KM**, Bae DH, Kim BS, Kang YH. Antioxidant and anticarcinogenic activity of solanaceae plants, The Plant Resources society of Korea, May 12-13 2006.

## **PATENT**

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- **Ku KM**, Kim J, Lee CH. The prediction method of tea type and the post-fermentation year of pu-erh tea, and the composition materials for the model. Patent No. 10-1130860. Mar 20 2012. (South Korea patent).

## **MEMBERSHIP and PROFESSIONAL ACTIVITIES**

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- Korean Society for Horticultural Science (KSHS).
- American Society for Horticultural Science (ASHS).
- Associate Editor (since 2016) and reviewer (since 2013) in Journal of Agricultural Science.
- Ad-Hoc reviewer in Scientia Agricola, Scientia Horticulturae, Foods & Function, Journal of American Society of Horticulture, Journal of Agricultural Food Chemistry, and Food Chemistry.
- Session moderator in Glucosinolate conference 2017, Berlin, Germany, Sep 17-20 2017.

## **TRAINING & WORKSHOPS ATTENDED**

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| 2006 Feb | Completed Bio analysis equipment operating program for 20 days (GC, HPLC, ICP, Bio-LC), Gyeongbuk Institute for Bio Industry, South Korea.                     |
| 2012 Sep | Trained Taqman ABI 7900 real time PCR, Roy J. Carver Biotechnology Center, UIUC.   |
| 2014 Jan | Trained Zeiss Axiovert 200M Fluorescence microscope, The Institute for Genomic Biology, UIUC.  |
| 2014 Feb | Completed Small Farm Winter Webinars, University of Illinois Extension.  |
| 2014 Jul | Trained JEOL 6060LV Scanning electron microscope, Material Research Laboratory, UIUC.  |
| 2014 Aug | Trained Leica RM2255 Microtome, The Institute for Genomic Biology, UIUC.   |
| 2014 Nov | Trained Agilent GC 5975B MSD, The Institute for Genomic Biology, UIUC<br>Attended Biological Structures Imaging Workshop, Materials Research Laboratory, UIUC. |
| 2015 Mar | Attended R, Linux/Biocluster, and RNAseq Workshop, HPCBio, UIUC  |
| 2015 Aug | iClicker and eCampus workshop, WVU   |
| 2016 Jun | Grant Writer's Seminars and Workshops  |