

## Symposium: Comparing Conventional and Biotechnology-Based Pest Management

5793

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**Comparing Conventional and Biotechnology-Based Pest Management**

Stephen O. Duke

### Articles

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[dx.doi.org/10.1021/jf102652y](http://dx.doi.org/10.1021/jf102652y)

**Agricultural Impacts of Glyphosate-Resistant Soybean Cultivation in South America**

Antonio L. Cerdeira,\* Dionisio L. P. Gazzlero, Stephen O. Duke, and Marcus B. Matallo

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[dx.doi.org/10.1021/jf103797n](http://dx.doi.org/10.1021/jf103797n)

**Herbicide Resistances in *Amaranthus tuberculatus*: A Call for New Options**

Patrick J. Tranel,\* Chance W. Higgins, Michael S. Bell, and Aaron G. Hager

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[dx.doi.org/10.1021/jf103389v](http://dx.doi.org/10.1021/jf103389v)

**Gene Flow from Herbicide-Resistant Crops: It's Not Just for Transgenes**

Carol A. Mallory-Smith\* and Elena Sanchez Olguin

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[dx.doi.org/10.1021/jf101286h](http://dx.doi.org/10.1021/jf101286h)

**Herbicide-Resistant Crops: Utilities and Limitations for Herbicide-Resistant Weed Management**

Jerry M. Green\* and Micheal D. K. Owen

5830 [dx.doi.org/10.1021/jf104233h](https://doi.org/10.1021/jf104233h)  
Genetic Engineering of Maize (*Zea mays*) for High-Level Tolerance to Treatment with the Herbicide Dicamba  
Mingxia Cao, Shirley J. Sato, Mark Behrens, Wen Z. Jiang, Thomas E. Clemente, and Donald P. Weeks\*

5835 [dx.doi.org/10.1021/jf102704x](https://doi.org/10.1021/jf102704x)  
Glyphosate Degradation in Glyphosate-Resistant and -Susceptible Crops and Weeds  
Stephen O. Duke

5842 [dx.doi.org/10.1021/jf102939c](https://doi.org/10.1021/jf102939c)  
Impacts of *Bt* Transgenic Cotton on Integrated Pest Management  
Steven E. Naranjo

5852 [dx.doi.org/10.1021/jf102673s](https://doi.org/10.1021/jf102673s)  
Relevance of Traditional Integrated Pest Management (IPM) Strategies for Commercial Corn Producers in a Transgenic Agroecosystem: A Bygone Era?  
Michael E. Gray

5859 [dx.doi.org/10.1021/jf1030168](https://doi.org/10.1021/jf1030168)  
U.S. EPA Regulation of Plant-Incorporated Protectants: Assessment of Impacts of Gene Flow from Pest-Resistant Plants  
Chris A. Wozniak\* and Jeannette C. Martinez

5865 [dx.doi.org/10.1021/jf103874t](https://doi.org/10.1021/jf103874t)  
Evaluation of Compositional Equivalence for Multitrait Biotechnology Crops  
William P. Ridley, George G. Harrigan,\* Matthew L. Breeze, Margaret A. Nemeth, Ravinder S. Sidhu, and Kevin C. Glenn

5877 [dx.doi.org/10.1021/jf1042079](https://doi.org/10.1021/jf1042079)  
Derivation and Interpretation of Hazard Quotients To Assess Ecological Risks from the Cultivation of Insect-Resistant Transgenic Crops  
Alan Raybould,\* Geoffrey Caron-Lormier, and David A. Bohan

5886 [dx.doi.org/10.1021/jf104719k](https://doi.org/10.1021/jf104719k)  
Mechanism of Resistance of Evolved Glyphosate-Resistant Palmer Amaranth (*Amaranthus palmeri*)  
Todd A. Gaines,\* Dale L. Shaner, Sarah M. Ward, Jan E. Leach, Christopher Preston, and Phillip Westra

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5890 [dx.doi.org/10.1021/jf104393q](https://doi.org/10.1021/jf104393q)  
Interference Prevention in Size-Exclusion Chromatographic Analysis of Debranched Starch Glucans by Aqueous System  
Amy Hui-Mei Lin, Yung-Ho Chang, Wen-Bin Chou, and Ting-Jang Lu\*

5899 [dx.doi.org/10.1021/jf104873g](https://doi.org/10.1021/jf104873g)  
A Novel Synchronous Fluorescence Spectroscopic Approach for the Rapid Determination of Three Polycyclic Aromatic Hydrocarbons in Tea with Simple Microwave-Assisted Pretreatment of Sample  
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5906 [dx.doi.org/10.1021/jf200455r](https://doi.org/10.1021/jf200455r)  
Simultaneous Quantification of Eight Biogenic Amine Compounds in Tuna by Matrix Solid-Phase Dispersion followed by HPLC-Orbitrap Mass Spectrometry  
Randy L. Seif, Wen-Hsin Wu,\* and Heidi S. Marks

5914 [dx.doi.org/10.1021/jf200459s](https://doi.org/10.1021/jf200459s)  
Development of the Visual Loop-Mediated Isothermal Amplification Assays for Seven Genetically Modified Maize Events and Their Application in Practical Samples Analysis  
Lili Chen, Jinchao Guo, Qidi Wang, Guoyin Kai, and Litao Yang\*

5919 [dx.doi.org/10.1021/jf200734x](https://doi.org/10.1021/jf200734x)  
Authentication of Animal Fats Using Direct Analysis in Real Time (DART) Ionization-Mass Spectrometry and Chemometric Tools  
Lukas Vaclavik, Vojtech Hrbek, Tomas Cajka, Bo-Anne Rohlik, Petr Pipek, and Jana Hajslova\*

## Bioactive Constituents

5927 [dx.doi.org/10.1021/jf104798n](https://doi.org/10.1021/jf104798n)

### Isolation and *Caenorhabditis elegans* Lifespan Assay of Flavonoids from Onion

You-Lin Xue, Tomoyuki Ahiko, Takuya Miyakawa, Hisako Amino, Fangyu Hu, Kazuo Furihata, Kiyoshi Kita, Takuji Shirasawa, Yoriko Sawano, and Masaru Tanokura\*

5935 [dx.doi.org/10.1021/jf201593n](https://doi.org/10.1021/jf201593n)

### Phenolic Composition and Antioxidant Activity in Seed Coats of 60 Chinese Black Soybean (*Glycine max* L. Merr.) Varieties

Rui Fen Zhang, Fang Xuan Zhang, Ming Wei Zhang,\* Zhen Cheng Wei, Chun Ying Yang, Yan Zhang, Xiao Jun Tang, Yuan Yuan Deng, and Jian Wei Chi

5945 [dx.doi.org/10.1021/jf200093q](https://doi.org/10.1021/jf200093q)

### Antifungal Activity and Fungal Metabolism of Steroidal Glycosides of Easter Lily (*Lilium longiflorum* Thunb.) by the Plant Pathogenic Fungus, *Botrytis cinerea*

John P. Munafo, Jr. and Thomas J. Gianfagna\*

5955 [dx.doi.org/10.1021/jf200159f](https://doi.org/10.1021/jf200159f)

### Metabolites in Contact with the Rat Digestive Tract after Ingestion of a Phenolic-Rich Dietary Fiber Matrix

Sonia Touriño, Jara Pérez-Jiménez,\* María Luisa Mateos-Martin, Elisabet Fuguet, Maria Pilar Vinardell, Marta Cascante, and Josep Lluís Torres

5964 [dx.doi.org/10.1021/jf2002415](https://doi.org/10.1021/jf2002415)

### Alkyl Hydroxytyrosyl Ethers Show Protective Effects against Oxidative Stress in HepG2 Cells

Gema Pereira-Caro, Beatriz Sarriá, Andrés Madrona, José Luis Espartero, Luis Goya, Laura Bravo, and Raquel Mateos\*

5977 [dx.doi.org/10.1021/jf200452z](https://doi.org/10.1021/jf200452z)

### Activity of Lycorine Analogues against the Fish Bacterial Pathogen *Flavobacterium columnare*

Cheng-Xia Tan, Kevin K. Schrader, Cassia S. Mizuno, and Agnes M. Rimando\*

5986 [dx.doi.org/10.1021/jf200621y](https://doi.org/10.1021/jf200621y)

### Fermentation of $\beta$ -Glucans Derived from Different Sources by Bifidobacteria: Evaluation of Their Bifidogenic Effect

Jinyang Zhao and Peter C. K. Cheung\*

5993 [dx.doi.org/10.1021/jf200776w](https://doi.org/10.1021/jf200776w)

### Food Grade Fungal Stress on Germinating Peanut Seeds Induced Phytoalexins and Enhanced Polyphenolic Antioxidants

Ziyun Wu, Lixia Song, and Dejian Huang\*

6004 [dx.doi.org/10.1021/jf200821p](https://doi.org/10.1021/jf200821p)

### Secondary Metabolites from *Glycine soja* and Their Growth Inhibitory Effect against *Spodoptera litura*

Yan-Ying Zhou, Shi-Hong Luo, Ting-Shuang Yi, Chun-Huan Li, Qian Luo, Juan Hua, Yan Liu, and Sheng-Hong Li\*

6011 [dx.doi.org/10.1021/jf200940h](https://doi.org/10.1021/jf200940h)

### Isolation and Tyrosinase Inhibitory Effects of Polyphenols from the Leaves of Persimmon, *Diospyros kaki*

You-Lin Xue, Takuya Miyakawa, Yasuna Hayashi, Kyoko Okamoto, Fangyu Hu, Nobuhito Mitani, Kazuo Furihata, Yoriko Sawano, and Masaru Tanokura\*

6018 [dx.doi.org/10.1021/jf200943n](https://doi.org/10.1021/jf200943n)

### Structural Profiling and Quantification of Sphingomyelin in Human Breast Milk by HPLC-MS/MS

Nina Blaas, Claudia Schülrmann, Nana Bartke, Bernd Stahl, and Hans-Ulrich Humpf\*

6025 [dx.doi.org/10.1021/jf2009556](https://doi.org/10.1021/jf2009556)

### Gastroprotective Activities of Adlay (*Coix lachryma-jobi* L. var. *ma-yuen* Stapf) on the Growth of the Stomach Cancer AGS Cell Line and Indomethacin-Induced Gastric Ulcers

Cheng-Pei Chung, Shih-Min Hsia, Ming-Yi Lee, Hong-Jhang Chen, Faiwen Cheng, Lu-Chi Chan, Yueh-Hsiung Kuo, Yun-Lian Lin,\* and Wenchang Chiang\*

## Chemical Aspects of Biotechnology/Molecular Biology

6034 [dx.doi.org/10.1021/jf200824c](https://doi.org/10.1021/jf200824c)

### Anthocyanin Accumulation and Expression of Anthocyanin Biosynthetic Genes in Radish (*Raphanus sativus*)

Nam Il Park, Hui Xu, Xiaohua Li, In Hyuk Jang, Suhyoung Park, Gil Hwan Ahn, Yong Pyo Lim, Sun Ju Kim,\* and Sang Un Park\*

6040 [dx.doi.org/10.1021/jf200397t](https://doi.org/10.1021/jf200397t)  
Degradation of Cyhalofop-butyl (CyB) by *Pseudomonas azotoformans* Strain QDZ-1 and Cloning of a Novel Gene Encoding CyB-Hydrolyzing Esterase  
Zhi-Juan Nie, Bao-Jian Hang, Shu Cai, Xiang-Ting Xie, Jian He,\* and Shun-Peng Li

6047 [dx.doi.org/10.1021/jf200456j](https://doi.org/10.1021/jf200456j)  
Comparison of the  $\alpha$ -Amylase Inhibitor-1 from Common Bean (*Phaseolus vulgaris*) Varieties and Transgenic Expression in Other Legumes—Post-Translational Modifications and Immunogenicity  
Peter M. Campbell,\* Daniela Reiner, Andrew E. Moore, Rui-Yun Lee, Michelle M. Epstein, and T. J. V. Higgins

6055 [dx.doi.org/10.1021/jf200619v](https://doi.org/10.1021/jf200619v)  
Lipase-Catalyzed Preparation of Human Milk Fat Substitutes from Palm Stearin in a Solvent-Free System  
Xiao-Qiang Zou, Jian-Hua Huang, Qing-Zhe Jin, Yuan-Fa Liu, Zhi-Hua Song, and Xing-Guo Wang\*

#### Chemical Aspects of Food Safety

6064 [dx.doi.org/10.1021/jf2008327](https://doi.org/10.1021/jf2008327)  
Development of an Immunochromatographic Strip Test for Rapid Detection of Melamine in Raw Milk, Milk Products and Animal Feed  
Xiangmei Li, Pengjie Luo, Shusheng Tang, Ross C. Beier, Xiaoping Wu, Lili Yang, Yanwei Li, and Xilong Xiao\*

6071 [dx.doi.org/10.1021/jf105019u](https://doi.org/10.1021/jf105019u)  
Fungistatic Activity of Bicyclo[4.3.0]- $\gamma$ -lactones  
Teresa Olejniczak,\* Filip Boratyński, and Agata Białońska

#### Chemical Changes Induced by Processing/Storage

6082 [dx.doi.org/10.1021/jf200203n](https://doi.org/10.1021/jf200203n)  
Degradation Kinetics of Catechins in Green Tea Powder: Effects of Temperature and Relative Humidity  
Na Li, Lynne S. Taylor, and Lisa J. Mauier\*

6091 [dx.doi.org/10.1021/jf200728e](https://doi.org/10.1021/jf200728e)  
Chemical and Biological Assessment of Angelicae Sinensis Radix after Processing with Wine: An Orthogonal Array Design To Reveal the Optimized Conditions  
Janis Y. X. Zhan, Ken Y. Z. Zheng, Kevin Y. Zhu, Cathy W. C. Bi, Wendy L. Zhang, Crystal Y. Q. Du, Qiang Fu, Tina T. X. Dong, Roy C. Y. Choh, Karl W. K. Tsim,\* and David T. W. Lau\*

6099 [dx.doi.org/10.1021/jf200735c](https://doi.org/10.1021/jf200735c)  
Reversible and Covalent Binding of 5-(Hydroxymethyl)-2-furaldehyde (HMF) with Lysine and Selected Amino Acids  
Plamen Y. Nikolov and Varoujan A. Yaylayan\*

6108 [dx.doi.org/10.1021/jf201009t](https://doi.org/10.1021/jf201009t)  
Extraction of Proteins with Low Fluoride Level from Antarctic Krill (*Euphausia superba*) and Their Composition Analysis  
Lingzhao Wang, Changhu Xue,\* Yuming Wang, and Bao Yang

6113 [dx.doi.org/10.1021/jf2012375](https://doi.org/10.1021/jf2012375)  
Inhibition of Citral Degradation by Oil-in-Water Nanoemulsions Combined with Antioxidants  
Xiaoqing Yang, Huaixiang Tian, Chi-Tang Ho, and Qingrong Huang\*

#### Chemical Composition of Foods/Feeds

6120 [dx.doi.org/10.1021/jf200073k](https://doi.org/10.1021/jf200073k)  
Phenolic Composition of Malbec Grape Skins and Seeds from Valle de Uco (Mendoza, Argentina) during Ripening. Effect of Cluster Thinning  
Martín Fanzone,\* Fernando Zamora, Viviana Jofré, Mariela Assol, and Álvaro Peña-Neira

6137 [dx.doi.org/10.1021/jf200323c](https://doi.org/10.1021/jf200323c)  
Tocopherol Concentration in Almond Oil: Genetic Variation and Environmental Effects under Warm Conditions  
Ossama Kodad, Gloria Estopañán, Teresa Juan, Ali Mamouni, and Rafel Socias i Company\*

6142 dx.doi.org/10.1021/jf2005854

**Triterpenoid Glycosides from the Leaves of Two Cultivars of *Medicago polymorpha* L.**  
Aldo Tava,\* Luciano Pecetti, Massimo Romani, Mariella Mella, and Pinarosa Avato

6150 dx.doi.org/10.1021/jf200881s

**Characteristic Phenolic Composition of Single-Cultivar Red Wines of the Canary Islands (Spain)**  
Juan Pedro Pérez-Trujillo, Zulimar Hernández, Francisco Javier López-Bellido, and Isidro Hermosín-Gutiérrez\*

6165 dx.doi.org/10.1021/jf201013k

**Influence of Cultivar, Harvest Time, Storage Conditions, and Peeling on the Antioxidant Capacity and Phenolic and Ascorbic Acid Contents of Apples and Pears**  
Claire Kevers,\* Joël Pincemail, Jessica Tabart, Jean-Olivier Defraigne, and Jacques Dommes

### Crop and Animal Protection Chemistry

6172 dx.doi.org/10.1021/jf200616y

**Design and Syntheses of Novel *N*-(Benzothiazol-5-yl)-4,5,6,7-tetrahydro-1*H*-isoindole-1,3(2*H*)-dione and *N*-(Benzothiazol-5-yl)-isoindoline-1,3-dione as Potent Protoporphyrinogen Oxidase Inhibitors**  
Li-Li Jiang, Yang Zuo, Zhi-Fang Wang, Yin Tan, Qiong-You Wu, Zhen Xi,\* and Guang-Fu Yang\*

6180 dx.doi.org/10.1021/jf200739a

**Volatile Analysis of Ground Almonds Contaminated with Naturally Occurring Fungi**  
John J. Beck,\* Noreen E. Mahoney, Daniel Cook, and Wai S. Gee

### Environmental Chemistry

6188 dx.doi.org/10.1021/jf201128r

**Identification of a Fungi-Derived Terrestrial Halogenated Natural Product in Wild Boar (*Sus scrofa*)**  
Josef Hiebl, Katja Lehnert, and Walter Vetter\*

### Flavors and Aromas/Chemosensory Perception

6193 dx.doi.org/10.1021/jf2005029

**Comparison of the Volatile Profile and Sensory Analysis of 'Golden Reinders' Apples after the Application of a Cold Air Period after Ultralow Oxygen (ULO) Storage**  
Rosa Altisent,\* Jordi Graell, Isabel Lara, Luisa López, and Gemma Echeverría

### Food Chemistry/Biochemistry

6202 dx.doi.org/10.1021/jf1047173

**Deactivation of Ferrylmyoglobin by Vanillin as Affected by Vanillin Binding to  $\beta$ -Lactoglobulin**  
Sílvia Helena Libardi, Júlio C. Borges, Leif H. Skibsted, and Daniel R. Cardoso\*

6209 dx.doi.org/10.1021/jf104959t

**Identification of the Strong Vasorelaxing Substance Scirpusin B, a Dimer of Piceatannol, from Passion Fruit (*Passiflora edulis*) Seeds**  
Shoko Sano,\* Kenkichi Sugiyama, Tatsuhiko Ito, Yumi Katano, and Akira Ishihata

6214 dx.doi.org/10.1021/jf104973h

**Transformation of Proanthocyanidin A2 to Its Isomers under Different Physiological pH Conditions and Common Cell Culture Medium**  
Wen-Chien Lu, Wei-Ting Huang, Aleganandam Kumaran, Chi-Tang Ho, and Lucy Sun Hwang\*

6221 dx.doi.org/10.1021/jf200115y

**Novel Antioxidant Reactions of Cinnamates in Wine**  
Nick Emil Gislason, Bruce Lamonte Currie, and Andrew Leo Waterhouse\*

6227 dx.doi.org/10.1021/jf200120y

**Dietary Grape-Seed Procyanidins Decreased Postweaning Diarrhea by Modulating Intestinal Permeability and Suppressing Oxidative Stress in Rats**  
Peixia Song, Ruoji Zhang, Xiaoxiao Wang, Pingli He, Lulin Tan, and Xi Ma\*

6233 dx.doi.org/10.1021/jf2003249

Purification and Characterization of  $\gamma$ -Glutamyltranspeptidase from *Bacillus subtilis* SK11.004

Yuying Shuai, Tao Zhang, Wanmeng Mu, and Bo Jiang\*

6239 dx.doi.org/10.1021/jf200348n

Evidence for an Extracellular Acid Proteolytic Activity Secreted by Living Cells of *Saccharomyces cerevisiae* PIR1: Impact on Grape Proteins

Buchra Younes,\* Clara Cilindre, Sandra Villaume, Maryline Parmentier, Philippe Jeandet, and Yann Vasserot

6247 dx.doi.org/10.1021/jf200450m

Influence of Surfactant Charge on Antimicrobial Efficacy of Surfactant-Stabilized Thyme Oil Nanoemulsions

Khalid Ziani, Yuhua Chang, Lynne McLandsborough, and David Julian McClements\*

6256 dx.doi.org/10.1021/jf200472x

Glutaraldehyde-Activated Chitosan Matrix for Immobilization of a Novel Cysteine Protease, Procerain B

Abhay Narayan Singh, Sushant Singh, Neeraj Suthar, and Vikash Kumar Dubey\*

6263 dx.doi.org/10.1021/jf200493b

Simultaneous Determination and Differentiation of Glycidyl Esters and 3-Monochloropropane-1,2-diol (MCPD) Esters in Different Foodstuffs by GC-MS

Markus Küsters,\* Ute Bimber, Sebastian Reeser, Rainer Gallitzendörfer, and Michael Gerhartz

6271 dx.doi.org/10.1021/jf2001537

Effects of Metal Chelator, Sodium Azide, and Superoxide Dismutase on the Oxidative Stability in Riboflavin-Photosensitized Oil-in-Water Emulsion Systems

JaeHwan Lee and Eric A. Decker\*

6277 dx.doi.org/10.1021/jf2006326

Inhibition of Buckwheat Starch Digestion by the Formation of Starch/Bile Salt Complexes: Possibility of Its Occurrence in the Intestine

Umeo Takahama\* and Sachiko Hirota

6284 dx.doi.org/10.1021/jf200686z

Role of the Raw Composition of Pelagic Fish Muscle on the Development of Lipid Oxidation and Rancidity during Storage

Rodrigo Maestre,\* Manuel Pazos, and Isabel Medina

6292 dx.doi.org/10.1021/jf200718j

Bovine Serum Albumin Nanoparticle Promotes the Stability of Quercetin in Simulated Intestinal Fluid

Ru Fang, Rulfang Hao, Xia Wu, Qi Li, Xiaojing Leng,\* and Hao Jing\*

6299 dx.doi.org/10.1021/jf200764d

Absorption of 6-O-Caffeoylsophorose and Its Metabolites in Sprague–Dawley Rats Detected by Electrochemical Detector–High-Performance Liquid Chromatography and Electrospray Ionization–Time-of-Flight–Mass Spectrometry Methods

Ju Qiu, Nozomi Saito, Mai Noguchi, Keiichi Fukui, Kayo Yoshiyama, Kazusato Matsugano, Norihiko Terehara, and Toshiro Matsui\*

6305 dx.doi.org/10.1021/jf201053s

Selenium Bioavailability from Naturally Produced High-Selenium Peas and Oats in Selenium-Deficient Rats

Lin Yan\* and LuAnn K. Johnson

## Molecular Nutrition

6312 dx.doi.org/10.1021/jf200424k

Ginsenoside Rb1 Inhibits Proliferation and Inflammatory Responses in Rat Aortic Smooth Muscle Cells

Qun-Yi Li, Li Chen, Wen-Huan Fu, Zhong-Dong Li, Bin Wang, Xiao-Jin Shi, and Ming-Kang Zhong\*

6319 dx.doi.org/10.1021/jf201160a

*s*-Allyl Cysteine, *s*-Ethyl Cysteine, and *s*-Propyl Cysteine Alleviate  $\beta$ -Amyloid, Glycative, and Oxidative Injury in Brain of Mice Treated by *D*-Galactose

Shih-Jei Tsai, C. Perry Chiu, Hul-Ting Yang, and Mei-Chin Yin\*

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[dx.doi.org/10.1021/jf200486r](https://doi.org/10.1021/jf200486r)

**Scorpion Toxins Modify Phytopathogenic Fungus Physiology. A Possible Source of New Fungicides**

Galax Joya, Gina D'Suze,\* Victor Salazar, Arnaldo Rosales, Carlos Sevcik, Gonzalo Visbal, André T. S. Ferreira, and Jonas Perales

## Additions and Corrections

6338

[dx.doi.org/10.1021/jf2016557](https://doi.org/10.1021/jf2016557)

**Correction to Acceleration of Precipitation Formation in Peach Juice Induced by High-Pressure Carbon Dioxide**

Linyan Zhou, Yan Zhang, Xiaojing Leng, Xiaojun Liao,\* and Xiaosong Hu