

JOURNAL OF
**AGRICULTURAL AND
FOOD CHEMISTRY**

March 25, 2009

JAFCAU 57(6) 2087–2604 (2009) ISSN 0021-8561

Registered in U.S. Patent and Trademark Office

Copyright 2009 by the American Chemical Society

REVIEW

- 2087 Enantioselective Phytoeffects of Chiral Pesticides**
Weiping Liu, Jing Ye, and Meiqing Jin*

ANALYTICAL METHODS

- 2096 Development of an Analytical Scheme for the Determination of Pyrethroid Pesticides in Composite Diet Samples**
*Anne P. Vonderheide, Peter E. Kauffman, Thomas E. Hieber, Judith A. Brisbin, Lisa Jo Melnyk, and Jeffrey N. Morgan**

- 2105 Polysaccharides as a Marker for Detection of Corn Sugar Syrup Addition in Honey**
Mehdi Megherbi, Bernard Herbreteau, René Faure, and Arnaud Salvador*

- 2112 A Thorough Study on the Use of Quantitative ^1H NMR in Rioja Red Wine Fermentation Processes**
Eva López-Rituer, Susana Cabredo, Martina López, Alberto Avenoza, Jesús H. Bustos, and Jesús M. Peregrina**

- 2119 Diversity of Monomeric Prolamins in Triticale Cultivars Determined by Capillary Zone Electrophoresis**
Bolesław P. Salmanowicz and Jolanta Nowak*

- 2126 Development and Validation of a Duplex Real-Time PCR Method To Simultaneously Detect Potentially Allergenic Sesame and Hazelnut in Food**
*Kerstin Schöringhumer, Gerda Redl, and Margit Cichna-Markl**

- 2135 Comparison of Analysis of Vitamin D₃ in Foods Using Ultraviolet and Mass Spectrometric Detection**
William C. Byrdwell

- 2147 New Method Development for Nanoparticle Extraction of Water-Soluble β -(1→3)-D-Glucan from Edible Mushrooms, *Sparassis crispa* and *Phellinus linteus***
Hyuk-Gu Park, Youn Young Shim, Seung-Oh Choi, and Won-Mok Park**

- 2155 Quantification of Ferritin from Staple Food Crops**
*Rebecca J. Lukac, Maneesha R. Aluru, and Manju B. Reddy**

- 2162 Applications of Ultra-performance Liquid Chromatography Electrospray Ionization Quadrupole Time-of-Flight Mass Spectrometry on Analysis of 138 Pesticides in Fruit- and Vegetable-Based Infant Foods**
Jian Wang and Daniel Leung*

- 2174 Protein Expression in Orthocortical and Paracortical Cells of Merino Wool Fibers**
Jeffrey E. Plowman, Santanu Deb-Choudhury, Warren G. Bryson, Stefan Clerens, and Jolon M. Dyer*

- 2181 Multidetermination of Four Nitrofurans in Animal Feeds by a Sensitive and Simple Enzyme-Linked Immunosorbent Assay**
*Jun Li, Ju Xiang Liu, and Jian Ping Wang**

- 2186 Engineering Zein Films with Controlled Surface Morphology and Hydrophilicity**
Ke Shi, Jozef L. Kokini, and Qingrong Huang**

- 2193 Traceability of Phytosanitary Products in the Production of a Sherry Wine Vinegar**
Enrique Durán Guerrero, Ramón Natera Marín, Remedios Castro Mejías, and Carmelo García Barroso*

BIOACTIVE CONSTITUENTS

- 2200 Identification of an Alkylhydroquinone from *Rhus succedanea* as an Inhibitor of Tyrosinase and Melanogenesis**
*Yun-Ru Chen, Robin Y.-Y. Chiou, Ting-Yu Lin, Cheng-Po Huang, Wei-Chien Tang, Shui-Tein Chen, and Shwu-Bin Lin**

- 2206 Polyphenol Extracts from *Hibiscus sabdariffa* Linnaeus Attenuate Nephropathy in Experimental Type 1 Diabetes**
*Wen-Chin Lee, Chau-Jong Wang, Yu-Hsin Chen, Jen-Dong Hsu, Su-Ya Cheng, Hong-Chen Chen, and Huei-Jane Lee**

- 2211 Effect of a Low Dose of Dietary Resveratrol on Colon Microbiota, Inflammation and Tissue Damage in a DSS-Induced Colitis Rat Model**
*Mar Larrosa, María Josefa Yañéz-Gascón, María Victoria Selma, Antonio González-Sarriás, Simona Toti, José Joaquín Cerón, Francisco Tomás-Barberán, Piero Dolara, and Juan Carlos Espín**

- 2221 Antiproliferation Effect and Mechanism of Prostate Cancer Cell Lines as Affected by Isoflavones from Soybean Cake**
*Bai Fu Wang, Jinn Shyan Wang, Jyh Feng Lu, Tsai Hua Kao, and Bing Huei Chen**

- 2233 Hen Egg Lysozyme Attenuates Inflammation and Modulates Local Gene Expression in a Porcine Model of Dextran Sodium Sulfate (DSS)-Induced Colitis**
*Maggie Lee, Jennifer Kovacs-Nolan, Chengbo Yang, Tania Archbold, Ming Z. Fan, and Yoshinori Mine**

- 2241 Immunomodulatory Effects of Egg White Enzymatic Hydrolysates Containing Immunodominant Epitopes in a BALB/c Mouse Model of Egg Allergy**
*Marie Yang, Chengbo Yang, Françoise Nau, Maryvonne Pasco, Lekh R. Juneja, Tutomu Okubo, and Yoshinori Mine**

- 2249 n-3 PUFA Fortification of High n-6 PUFA Farmed Tilapia with Linseed Could Significantly Increase Dietary Contribution and Support Nutritional Expectations of Fish**
Niva Shapira, Pierre Weill, Ossie Sharon, Rachel Loewenbach, and Ofer Berzak*

- 2255 Root Colonization by an Arbuscular Mycorrhizal (AM) Fungus Increases Growth and Secondary Metabolism of Purple Coneflower, *Echinacea purpurea* (L.) Moench**
*Ghada Araim, Ammar Saleem, John T. Arnason, and Christiane Charest**

- 2259 Effect of Adlay (*Coix lachryma-jobi* L. var. *ma-yuen* Stapf) Testa and Its Phenolic Components on Cu²⁺-Treated Low-Density Lipoprotein (LDL) Oxidation and Lipopolysaccharide (LPS)-Induced Inflammation in RAW 264.7 Macrophages**
Din-Wen Huang, Yueh-Hsiung Kuo, Fang-Yi Lin, Yun-Lian Lin,* and Wenchang Chiang**

- 2267 Characterization of Total, Free and Esterified Phytosterols in Tetraploid and Hexaploid Wheats**
*Giovanna Iafelice, Vito Verardo, Emanuele Marconi, and Maria Fiorenza Caboni**

- 2274 Metabolism of Berry Anthocyanins to Phenolic Acids in Humans**
Tarja Nurmi, Jaakko Mursu, Marina Heinonen, Anna Nurmi, Raimo Hiltunen, and Sari Voutilainen*

- 2282 Ovicidal and Aduliticidal Activities of *Origanum majorana* Essential Oil Constituents against Insecticide-Susceptible and Pyrethroid/Malathion-Resistant *Pediculus humanus capitis* (Anoplura: Pediculidae)**
*Young-Cheol Yang, Si Hyeock Lee, J. Marshall Clark, and Young-Joon Ahn**

- 2288 *Pieris brassicae* Inhibits Xanthine Oxidase**
*Carla Sousa, David M. Pereira, Patrícia Valentão, Federico Ferreres, José A. Pereira, Rosa M. Seabra, and Paula B. Andrade**

BIOFUELS AND BIOPRODUCTS CHEMISTRY

- 2295 Influence of Epichlorohydrin Modification on Structure and Properties of Wheat Gliadin Films**
Yihu Song, Lingfang Li, and Qiang Zheng*

- 2302 Effect of Low-Shear Extrusion on Corn Fermentation and Oil Partition**
Hui Wang, Tong Wang, and Lawrence A. Johnson*

CHEMICAL ASPECTS OF BIOTECHNOLOGY/MOLECULAR BIOLOGY

- 2308 Stability of Artificial Oil Bodies Constituted with Recombinant Caleosins**
*Ting-hang Liu, Chia-lin Chyan, Feng-yin Li, and Jason T. C. Tzen**

CHEMICAL ASPECTS OF FOOD SAFETY

- 2314 Major Allergen and Its IgE Cross-Reactivity among Salmonid Fish Roe Allergy**
*Yutaka Shimizu, Atsushi Nakamura, Hideki Kishimura, Akihiko Hara, Kazuhiko Watanabe, and Hiroki Saeki**

- 2320 Hypochlorite Treatments are not a Significant Source of Perchlorate Exposure in Lettuce**
*C. A. Sanchez, J. M. Fonseca, B. C. Blount, and R. I. Krieger**

- 2324 Residue Depletion of Imidocarb in Swine Tissue**
*Zhongjie Wang, Xiubo Li, Dan Su, Yijing Li, Lianyong Wu, Yongjian Wang, and Wenxue Wu**

CHEMICAL CHANGES INDUCED BY PROCESSING/STORAGE

- 2329 Residue-free Wines: Fate of Some Quinone outside Inhibitor (QoI) Fungicides in the Winemaking Process**
Vincenzo Luigi Garau, Susana De Melo Abreu, Pierluigi Caboni, Alberto Angioni, Arminda Alves, and Paolo Cabras*

- 2334 Effect of Boiling on the Content of Ascorbigen, Indole-3-carbinol, Indole-3-acetonitrile, and 3,3'-Diindolylmethane in Fermented Cabbage**
Ewa Ciska, Ruud Verkerk, and Joanna Honke*
- 2339 Effects of Polyols on the Stability of Whey Proteins in Intermediate-Moisture Food Model Systems**
*Xiaoming Liu, Peng Zhou, Amy Tran, and Ted P. Labuza**
- 2346 Antifirming Effects of Starch Degrading Enzymes in Bread Crumb**
Hans Goesaert, Pedro Leman, Annabel Bijnbeker, and Jan A. Delcour*
- 2356 Effects of Extrusion Process Variables on Extractable Ginsenosides in Wheat-Ginseng Extrudates**
*Yoon H. Chang and Perry K. W. Ng**
- 2363 Detection of Adulteration of Notoginseng Root Extract with Other *Panax* Species by Quantitative HPLC Coupled with PCA**
Chong-Zhi Wang, Ming Ni, Shi Sun, Xiao-Li Li, Hui He, Sangeeta R. Mehendale, and Chun-Su Yuan*
- 2368 Use of a *Schizosaccharomyces pombe* Mutant to Reduce the Content in Gluconic Acid of Must Obtained from Rotten Grapes**
*Rafael A. Peinado, Oscar Maestre, Juan C. Mauricio, and Juan J. Moreno**
-
- CHEMICAL COMPOSITION OF FOODS/FEEDS**
- 2378 Characterization of Maize Germplasm for the Chemical Composition of the Grain**
Nicola Berardo, Gianfranco Mazzinelli, Paolo Valoti, Paolo Lagana, and Rita Redaelli*
- 2385 Composition of Peats Used in the Preparation of Malt for Scotch Whisky Production—Influence of Geographical Source and Extraction Depth**
Barry M. Harrison and Fergus G. Priest*
- 2392 Composition of Transgenic *Volvariella volvacea* Tolerant to Cold Stress Is Equivalent to That of Conventional Control**
*Jie Wang, Liqiong Guo, and Junfang Lin**
- 2397 Effect of an Oil Byproduct from Conjugated Linoleic Acid (CLA) Purification on CLA Accumulation and Lipogenic Gene Expression in Broilers**
*Jun Ho Kim, Wan Sik Jeong, In Ho Kim, Hyo-Jin Kim, Sang Ho Kim, Geun Ho Kang, Hong-Gu Lee, Ho Geun Yoon, Hee-Jin Ham, and Young Jun Kim**
- 2405 Free Water-Soluble Phenolics Profiling in Barley (*Hordeum vulgare* L.)**
*Federico Ferreres, Zuzana Kršková, Rui F. Gonçalves, Patrícia Valentão, José A. Pereira, Jaroslav Dušek, Jan Martin, and Paula B. Andrade**
- 2410 Study of the Evolution of Nitrogen Compounds during Grape Ripening. Application to Differentiate Grape Varieties and Cultivated Systems**
*Teresa Garde-Cerdán, Cándida Lorenzo, José Félix Lara, Francisco Pardo, Carmen Añcín-Azpilicueta, and M. Rosario Salinas**

CROP AND ANIMAL PROTECTION CHEMISTRY

- 2420 Synthesis and Quantitative Structure–Antifungal Activity Relationships of Clovane Derivatives against *Botrytis cinerea***
*Liane Saiz-Urra, Juan C. Racero, Antonio J. Macías-Sánchez, Rosario Hernández-Galán, James R. Hanson, Maykel Perez-Gonzalez, and Isidro G. Collado**
- 2429 Synthetic Inhibitors of the Fungal Detoxifying Enzyme Brassinin Oxidase Based on the Phytoalexin Camalexin Scaffold**
M. Soledade C. Pedras, Zoran Minic, and Vijay K. Sarma-Mamillapalle*
- 2436 ■ Neonicotinoid Substituents Forming a Water Bridge at the Nicotinic Acetylcholine Receptor**
*Ikuya Ohno, Motohiro Tomizawa, Kathleen A. Durkin, John E. Casida, and Shinzo Kagabu**
- 2441 Synthesis, Controlled Release Properties, and Increased Antifungal Activities of Novel *cis*- and *trans*-Racemate Complexes of Propiconazole**
*Xi Chen and Chunlong Yang**
- 2447 Synthesis and Insecticidal Activities and SAR Studies of Novel Benzoheterocyclic Diacylhydrazine Derivatives**
*Zhiqiang Huang, Quanmin Cui, Lixia Xiong, Ziwen Wang, Kaiyun Wang, Qiqi Zhao, Fuchun Bi, and Qingmin Wang**
- 2457 Persistence of Two Neem Formulations on Peach Leaves and Fruit: Effect of the Distribution**
*Giorgia Sarais, Alberto Angioni, Francesco Lai, Paolo Cabras, and Pierluigi Caboni**

FLAVORS AND AROMAS/CHEMOSENSORY PERCEPTION

- 2462 ■ Odor Detection Thresholds and Enantiomeric Distributions of Several 4-Alkyl Substituted γ -Lactones in Australian Red Wine**
Rachel C. Cooke (née Brown), Katryna A. van Leeuwen, Dimitra L. Capone, Richard Gawel, Gordon M. Elsey, and Mark A. Sefton*
- 2468 Comparison of the Suitability of Different Hydrolytic Strategies To Predict Aroma Potential of Different Grape Varieties**
Natalia Loscos, Purificación Hernández-Orte, Juan Cacho, and Vicente Ferreira*
- 2481 Quantification and Odor Contribution of 2-Furanmethanethiol in Different Types of Fermented Soybean Paste Miso**
*Motoko Ohata, Takatoshi Tominaga, Denis Dubourdieu, Kikue Kubota, and Etsuko Sugawara**
- 2486 Encapsulation Performance of Proteins and Traditional Materials for Spray Dried Flavors**
Joséphine Charve and Gary A. Reineccius*
- 2493 Identification and Characteristics of New Volatile Thiols Derived from the Hop (*Humulus lupulus* L.) Cultivar Nelson Sauvin**
Kiyoshi Takoi, Marie Degueil, Svitlana Shinkaruk, Cécile Thibon, Katsuaki Maeda, Kazutoshi Ito, Bernard Bennetau, Denis Dubourdieu, and Takatoshi Tominaga*

- 2503 ■ **First Identification of O,S-Diethyl Thiocarbonate in Indian Cress Absolute and Odor Evaluation of Its Synthesized Homologues by GC-Sniffing**
Katharina Breme, Nadine Guillamon, Xavier Fernandez, Pascal Tournayre,
 Hugues Brevard, Daniel Joulain, Jean Louis Berdagué, and Uwe J. Meierhenrich*

- 2508 **pH-Dependent Inhibition of the Human Bitter Taste Receptor hTAS2R16 by a Variety of Acidic Substances**

*Takanobu Sakurai, Takumi Misaka, Toshitada Nagai, Yoshiro Ishimaru,
 Shinji Matsuo, Tomiko Asakura, and Keiko Abe**

FOOD CHEMISTRY/BIOCHEMISTRY

- 2515 ***Debaryomyces hansenii* UFV-1 Intracellular α -Galactosidase Characterization and Comparative Studies with the Extracellular Enzyme**

*Pollyanna A. Viana, Sebastião T. de Rezende, Flávia Maria Lopes Passos,
 Jamil S. Oliveira, Kádima N. Teixeira, Alexandre M. C. Santos,
 Marcelo P. Bemquerer, José C. Rosa, Marcelo M. Santoro, and
 Valéria M. Guimarães**

- 2523 **Fluorescence Detection of Tyrosinase Activity on Dopamine-Betaxanthin Purified from *Portulaca oleracea* (Common Purslane) Flowers**

Fernando Gandía-Herrero, Mercedes Jiménez-Atiénzar, Juana Cabanes,
 Josefa Escribano, and Francisco García-Carmona*

- 2529 **Biodegradable Zein-Based Films: Influence of γ -Irradiation on Structural and Functional Properties**

Emad A. Soliman, Mohamed S. Mohy Eldin, and Masakazu Furuta*

- 2536 **Modeling Physicochemical Properties and Activity of Aspartyl Proteinases Based on Amino Acid Composition**

*Lei Nie and Karl J. Siebert**

- 2544 **Stilbenoids Isolated from the Seeds of Melinjo (*Gnetum gnemon* L.) and Their Biological Activity**

Eishin Kato, Yuji Tokunaga, and Fujio Sakan*

- 2550 **International Multidimensional Authenticity Specification (IMAS) Algorithm for Detection of Commercial Pomegranate Juice Adulteration**

*Yanjun Zhang, Dana Krueger, Robert Durst, Rupo Lee, David Wang,
 Navindra Seeram, and David Heber**

- 2558 **Adenosine, an Identified Active Component from the Driselase-Treated Fraction of Rice Bran, Is Effective at Improving Metabolic Syndrome in Stroke-Prone Spontaneously Hypertensive Rats**

Ardiansyah, Hitoshi Shirakawa, Taku Shimeno, Takuya Koseki, Yoshihito Shiono,
 Tetsuya Murayama, Eiko Hatakeyama, and Michio Komai*

- 2565 **Inhibitory Effects of Methyl *trans*-Cinnamate on Mushroom Tyrosinase and Its Antimicrobial Activities**

*Qian-Sheng Huang, Yu-Jing Zhu, Hua-Liang Li, Jiang-Xing Zhuang, Chun-Le Zhang,
 Jing-Jing Zhou, Wen-Gang Li,* and Qing-Xi Chen**

MOLECULAR NUTRITION

- 2570 **Protective Effect of Red Beetroot against Carbon Tetrachloride- and N-Nitrosodiethylamine-Induced Oxidative Stress in Rats**

*Małgorzata Kujawska, Ewa Ignatowicz, Marek Murias, Małgorzata Ewertowska,
 Katarzyna Mikołajczyk, and Jadwiga Jodynisi-Liebert**

- 2576 Modulation of Akt, JNK, and p38 Activation Is Involved in Citrus Flavonoid-Mediated Cytoprotection of PC12 Cells Challenged by Hydrogen Peroxide**
*Sam-Long Hwang and Gow-Chin Yen**
- 2583 Chronic Ingestion of Apple Pectin Can Enhance the Absorption of Quercetin**
Tomohiko Nishijima, Kunihisa Iwai, Yasuo Saito, Yoshiki Takida, and Hajime Matsue*
- 2588 Inhibitory Effects of Grape Seed Procyanidins on Foam Cell Formation in Vitro**
*Ximena Terra, Juan Fernández-Larrea, Gerard Pujadas, Anna Ardèvol, Cinta Bladé, Josepa Salvadó, Luis Arola, and Mayte Blay**

TOXICOLOGY IN AGRICULTURE AND FOOD

- 2595 Development and Validation of an LC-MS/MS Confirmatory Method for Residue Analysis of Cyproheptadine in Urine of Food-Producing Animals**
Cristina A. Fente, Patricia Regal, Beatriz I. Vázquez, Xexús Feás, Carlos M. Franco, and Alberto Cepeda*
- 2599 Isolation, Characterization, and Quantification of Steroidal Saponins in Switchgrass (*Panicum virgatum L.*)**
Stephen T. Lee, Robert B. Mitchell, Zhirui Wang, Christian Heiss, Dale R. Gardner, and Parastoo Azadi*

■ Supporting Information is available free of charge via the Internet at <http://pubs.acs.org>.

* In papers with more than one author, the asterisk indicates the name of the author to whom inquiries about the paper should be addressed.

Digital Object Identifier (DOI): The DOI appears at the bottom of the first page of each article. We suggest that you include the DOI in all CCC reporting and document delivery requests. See the masthead of this journal or our Web site at <http://pubs.acs.org> for more details.

Visit the Web Current ACS Ethical Guidelines to Publication of Chemical Research and other information for authors and reviewers, including guidelines for manuscript preparation and copyright forms, can be found on the Web at the Author & Reviewer Resource Center at <http://pubs.acs.org/page/4authors/index.html>.