

JOURNAL OF
**AGRICULTURAL AND
FOOD CHEMISTRY**

June 24, 2009

JAFCAU 57(12) 5113–5646 (2009) ISSN 0021-8561
Registered in the U.S. Patent and Trademark Office
Copyright 2009 by the American Chemical Society

REVIEW

- 5113 **Plant Food-Derived Angiotensin I Converting Enzyme Inhibitory Peptides**
*Cuie Guang and Robert D. Phillips**

ANALYTICAL METHODS

- 5121 **FT-IR Methodology for Quality Control of Arabinogalactan Protein (AGP) Extracted from Green Tea (*Camellia sinensis*)**

Xiao-Ling Zhou, Ping-Nan Sun, Peter Bucheli, Tian-Hua Huang, and Dongfeng Wang*

- 5129 **Monoclonal Antibody Generation and Direct Competitive Enzyme-Linked Immunosorbent Assay Evaluation for the Analysis of the Fungicide Fenhexamid in Must and Wine**
*Josep V. Mercader and Antonio Abad-Fuentes**

- 5136 **Mid-Infrared and Near-Infrared Calibrations for Nutritional Parameters of Triticale (*Triticosecale*) and Pea (*Pisum sativum*)**

Francisco J. Calderón, Merle F. Vigil, James B. Reeves, III, and David J. Poss*

- 5143 **Facile Deferration of Commercial Fertilizers Containing Iron Chelates for Their NMR Analysis**

*Luca Laghi, Sara Alcañiz, Mar Cerdán, Mar Gomez-Gallego, Miguel Angel Sierra, Giuseppe Placucci, and Mauro Andrea Cremonini**

- 5148 **Single-Step Purification of Native Miraculin Using Immobilized Metal-Affinity Chromatography**

*Narendra Duhita, Kyoko Hiyasa-Tanase, Shigeki Yoshida, and Hiroshi Ezura**

- 5152 **Stable Isotope Dilution Assays of Alternariol and Alternariol Monomethyl Ether in Beverages**

*Stefan Asam, Katharina Konitzer, Peter Schieberle, and Michael Rychlik**

- 5161 **Analysis of Volatile Profiles of Fermenting Grape Must by Headspace Solid-Phase Dynamic Extraction Coupled with Gas Chromatography–Mass Spectrometry (HS-SPDE GC-MS): Novel Application To Investigate Problem Fermentations**

*Sulette Malherbe, Vivian Watts, Hélène H. Nieuwoudt, Florian F. Bauer, and Marei du Toit**

- 5167 **Multiplex PCR-Based Simultaneous Amplification of Selectable Marker and Reporter Genes for the Screening of Genetically Modified Crops**

Gurinder Jit Randhawa, Rashmi Chhabra, and Monika Singh*

- 5173 **Peroxidase-Catalyzed Oxidative Coupling of Paraphenylenediamine with 3-Dimethylaminobenzoic Acid: Application in Crude Plant Extracts**
Padmarajaiah Nagaraja, Anantharaman Shivakumar, and Ashwinee Kumar Shrestha*
- 5178 **Determination of an Antioxidant Capacity Index by Immobilized Tyrosinase Bioreactor**
Anna Maria Girelli, Tatiana Giuliani, Enrico Mattei, and Domenica Papaleo*
- 5187 **Rapid and Sensitive Analysis of Alkylresorcinols from Cereal Grains and Products Using HPLC–Coularray-Based Electrochemical Detection**
Alastair B. Ross and Sunil Kochhar*

BIOACTIVE CONSTITUENTS

- 5194 ■ **β -Triketone Inhibitors of Plant *p*-Hydroxyphenylpyruvate Dioxygenase: Modeling and Comparative Molecular Field Analysis of Their Interactions**
Franck E. Dayan, Nidhi Singh, Christopher R. McCurdy, Colette A. Godfrey, Lesley Larsen, Rex T. Weavers, John W. Van Klink, and Nigel B. Perry*
- 5201 **In Vitro and *in Vivo* Anti-angiogenic Activities and Inhibition of Hormone-Dependent and -Independent Breast Cancer Cells by Ceramide Methylaminoethylphosphonate**
*Madhavi Chintalapati, Robert Truax, Rhett Stout, Ralph Portier, and Jack N. Losso**
- 5211 **β -Sitosterol Inhibits Cell Growth and Induces Apoptosis in SGC-7901 Human Stomach Cancer Cells**
*Yonghuan Zhao, Sam K. C. Chang, Gang Qu, Tianwen Li, and Hongbin Cui**
- 5219 **Identifying Peach and Plum Polyphenols with Chemopreventive Potential against Estrogen-Independent Breast Cancer Cells**
*Giuliana Noratto, Weston Porter, David Byrne, and Luis Cisneros-Zevallos**
- 5227 ■ **Analysis of Phytochemical Composition and Chemoprotective Capacity of Rocket (*Eruca sativa* and *Diplotaxis tenuifolia*) Leafy Salad Following Cultivation in Different Environments**
*Jing Jin, Olga A. Koroleva, Trevor Gibson, June Swanston, Jane Magan, Yan Zhang, Ian R. Rowland, and Carol Wagstaff**
- 5235 **Mechanisms of Apoptotic Effects Induced by Resveratrol, Dibenzoylmethane, and Their Analogues on Human Lung Carcinoma Cells**
*Chia-Jui Weng, Ya-Ting Yang, Chi-Tang Ho, and Gow-Chin Yen**
- 5244 **Characterization of Anthocyanins in Caucasian Blueberries (*Vaccinium arctostaphylos* L.) Native to Turkey**
Anja K. Lähti, Pirjo S. Kainulainen, Sema Hayırlioglu-Ayaz, Faik A. Ayaz, and Kaisu R. Riihinen*
- 5250 ■ **Dietary Inulin Supplementation Does Not Promote Colonic Iron Absorption in a Porcine Model**
*Jannine K. Patterson, Michael A. Rutzke, Susan L. Fubini, Raymond P. Glahn, Ross M. Welch, Xingen Lei, and Dennis D. Miller**
- 5257 **Pu-erh Tea Attenuates Hyperlipogenesis and Induces Hepatoma Cells Growth Arrest through Activating AMP-Activated Protein Kinase (AMPK) in Human HepG2 Cells**
*Tzong-Der Way, Hui-Yi Lin, Daih-Huang Kuo, Shang-Jie Tsai, Jia-Ching Shieh, Jia-Chium Wu, Maw-Rong Lee, and Jen-Kun Lin**

5265 Chemical Compositions and Antioxidant/Antimicrobial Activities of Various Samples Prepared from *Schinus terebinthifolius* Leaves Cultivated in Egypt

*Khaled F. El-Massry, Ahmed H. El-Ghorab, Hamdy A. Shaaban, and Takayuki Shibamoto**

5271 Anthocyanin Stability and Recovery: Implications for the Analysis of Clinical and Experimental Samples

*Gary Woodward, Paul Kroon, Aedin Cassidy, and Colin Kay**

5279 ■ Limonin Methoxylation Influences the Induction of Glutathione S-Transferase and Quinone Reductase

Jose Luis Perez, G. K. Jayaprakasha, Violeta Valdivia, Diana Munoz, Deepak V. Dandekar, Hassan Ahmad, and Bhimanagouda S. Patil**

5287 Preparation and Antioxidative Properties of a Rapeseed (*Brassica napus*) Protein Hydrolysate and Three Peptide Fractions

*Zhaohui Xue, Wancong Yu, Zhiwei Liu, Moucheng Wu, Xiaohong Kou, and Jiehua Wang**

5294 Physicochemical Study of the Complexation of Pterostilbene by Natural and Modified Cyclodextrins

José Manuel López-Nicolás, Pilar Rodríguez-Bonilla, Lorena Méndez-Cazorla, and Francisco García-Carmona*

5301 Inhibition of UVA and UVB Radiation-Induced Lipid Oxidation by Quercetin

*Brian M. Fahlman and Ed S. Krol**

5306 Influence of the Chlorophyll Pigment Structure on Its Transfer from an Oily Food Matrix to Intestinal Epithelium Cells

*Beatriz Gandul-Rojas, Lourdes Gallardo-Guerrero, and M. Isabel Minguez-Mosquera**

CHEMICAL ASPECTS OF BIOTECHNOLOGY/MOLECULAR BIOLOGY

5315 Impact of Assay Conditions on Activity Estimate and Kinetics Comparison of *Aspergillus niger* PhyA and *Escherichia coli* AppA2 Phytases

*Jeremy D. Weaver, Abul H. J. Ullah, Kandan Sethumadhavan, Edward J. Mullaney, and Xin Gen Lei**

5321 Functional Expression and Characterization of Keratinase from *Pseudomonas aeruginosa* in *Pichia pastoris*

*Hsin-Hung Lin, Li-Jung Yin, and Shann-Tzong Jiang**

5326 RNAi-Mediated Suppression of *DET1* Alters the Levels of Carotenoids and Sinapate Esters in Seeds of *Brassica napus*

*Shu Wei, Xiang Li, Margaret Y. Gruber, Rong Li, Rong Zhou, Alireza Zebarjadi, and Abdelali Hannoufa**

5334 Cloning and Expression Analysis of Carotenogenic Genes during Ripening of Autumn Olive Fruit (*Elaeagnus umbellata*)

Xinlun Guo, Ling Yang, Haitao Hu, and Li Yang*

CHEMICAL ASPECTS OF FOOD SAFETY

5340 Melamine in Infant Formula Sold in Canada: Occurrence and Risk Assessment

Sheryl A. Tittlemier, Benjamin P.-Y. Lau, Cathie Ménard, Catherine Corrigan, Melissa Sparling, Dean Gaertner, Karen Pepper, and Mark Feeley*

- 5345 Bisphenol A in Baby Food Products in Glass Jars with Metal Lids from Canadian Markets**
Xu-Liang Cao, Jeannette Corriveau, Svetlana Popovic, Genevieve Clement, Franca Beraldin, and Guy Dufresne*
- 5352 Bioavailability of Polycyclic Aromatic Hydrocarbons (PAHs) from Soil and Hay Matrices in Lactating Goats**
*Adrian Costera, Cyril Feidt, Marie-Antoinette Dziurla, Fabrice Monteau, Bruno Le Bizec, and Guido Rychen**
- 5358 Chemistry and in Vitro Antioxidant Activity of Volatile Oil and Oleoresins of Black Pepper (*Piper nigrum*)**
I. P. S. Kapoor, Bandana Singh, Gurdip Singh, Carola S. De Heluani, M. P. De Lampasona, and Cesar A. N. Catalan*

CHEMICAL CHANGES INDUCED BY PROCESSING/STORAGE

- 5365 Role of Roasting Conditions in the Level of Chlorogenic Acid Content in Coffee Beans: Correlation with Coffee Acidity**
*Joon-Kwan Moon, Hyui Sun Yoo, and Takayuki Shibamoto**
- 5370 Degradation Kinetics of Peroxidase Enzyme, Phenolic Content, and Physical and Sensorial Characteristics in Broccoli (*Brassica oleracea* L. ssp. *Italica*) during Blanching**
*Elsa M. Gonçalves, Joaquina Pinheiro, Carla Alegria, Marta Abreu, Teresa R. S. Brandão, and Cristina L. M. Silva**
- 5376 Characterization and High-Pressure Microfluidization-Induced Activation of Polyphenoloxidase from Chinese Pear (*Pyrus pyrifolia* Nakai)**
Wei Liu, Jianhua Liu, Mingyong Xie, Chengmei Liu, Weilin Liu, and Jie Wan*

CHEMICAL COMPOSITION OF FOODS/FEEDS

- 5381 Carotenoid and Tocopherol Composition of Leaves, Buds, and Flowers of *Capparis spinosa* Grown Wild in Tunisia**
Nizar Tlili, Nizar Nasri, Ezzeddine Saadaoui, Abdelhamid Khaldi, and Saida Triki*
- 5386 Isoflavonoid Content of Hong Kong Soy Foods**
Sieu G. Chan, Patricia A. Murphy, Suzanne C. Ho, Nancy Kreiger, Gerarda Darlington, Edwin K. F. So, and Portia Y. Y. Chong*
- 5391 MALDI-TOF Mass Spectrometry Profiling of Polar and Nonpolar Fractions in Heated Vegetable Oils**
Gianluca Picariello, Antonello Paduano, Raffaele Sacchi, and Francesco Addeo**
- 5401 Characterization of Saskatoon Berry (*Amelanchier alnifolia* Nutt.) Seed Oil**
Anna M. Bakowska-Barczak, Andreas Schieber, and Paul Kolodziejczyk*
- 5407 Assessment of Capsiconinoid Composition, Nonpungent Capsaicinoid Analogs, in *Capsicum* Cultivars**
Yoshiyuki Tanaka, Munetaka Hosokawa, Keigo Otsu, Tatsuo Watanabe, and Susumu Yazawa*
- 5413 Lentils (*Lens culinaris* Medikus Subspecies *culinaris*): A Whole Food for Increased Iron and Zinc Intake**
*Dil Thavarajah, Pushparajah Thavarajah, Ashutosh Sarker, and Albert Vandenberg**

5420 Contents of Vitamin C, Carotenoids, Tocopherols, and Tocotrienols in the Subtropical Plant Species *Cyphostemma digitatum* as Affected by Processing

Mohammed Al-Duais, Julianne Hohbein, Susanne Werner, Volker Böhm, and Gottfried Jetschke*

ENVIRONMENTAL CHEMISTRY

5428 Effects of Manure and Water Applications on 1,3-Dichloropropene and Chloropicrin Emissions in a Field Trial

Suduan Gao, Ruijun Qin, Bradley D. Hanson, Nishanth Tharayil, Thomas J. Trout, Dong Wang, and James Gerik*

5435 Effect of Vermicomposts from Wastes of the Wine and Alcohol Industries in the Persistence and Distribution of Imidacloprid and Diuron on Agricultural Soils

Jesús D. Fernández-Bayo, Rogelio Nogales, and Esperanza Romero*

5443 Modeling Approach To Assess Clustering Impact on Release Rates of Pesticides from Microencapsulated Products

Steven A. Cryer and Stephen L. Wilson*

5452 Immobilized Inocula of White-Rot Fungi Accelerate both Detoxification and Organic Matter Transformation in Two-Phase Dry Olive-Mill Residue

*Inmaculada Sampedro, Tomas Cajthaml, Sara Marinari, Silvia Rita Stazi, Stefano Grego, Maurizio Petruccioli, Federico Federici, and Alessandro D'Annibale**

5461 Comparative Study on the Sorption Capacity of Cyhalofop Acid on Polymerin, Ferrihydrite, and on a Ferrihydrite–Polymerin Complex

Filomena Sannino, Marianna Iorio, Veria Addorisio, Antonio De Martino, and Renato Capasso*

FLAVORS AND AROMAS/CHEMOSENSORY PERCEPTION

5468 Fate of Grape Flavor Precursors during Storage on Yeast Lees

*Natalia Loscos, Purificación Hernández-Orte, Juan Cacho, and Vicente Ferreira**

5480 Stress Repression in Restrained Rats by (*R*)-(−)-Linalool Inhalation and Gene Expression Profiling of Their Whole Blood Cells

Akio Nakamura, Satoshi Fujiwara, Ichiro Matsumoto, and Keiko Abe*

5486 Development of Structure–Taste Relationships for Thiazolyl-, Benzothiazolyl-, and Thiadiazolylsulfamates

William J. Spillane, Catherine M. Coyle, Brendan G. Feeney, and Emer F. Thompson*

FOOD CHEMISTRY/BIOCHEMISTRY

5494 Impact of Light Variation on Development of Photoprotection, Antioxidants, and Nutritional Value in *Lactuca sativa* L.

*Yan-Hong Zhou, Ying-Yun Zhang, Xin Zhao, Hai-Jing Yu, Kai Shi, and Jing-Quan Yu**

5501 Ice-Structuring Peptides Derived from Bovine Collagen

*Shao Yun Wang and Srinivasan Damodaran**

5510 Direct Enzymatic Production of Oligosaccharide Mixtures from Sugar Beet Pulp: Experimental Evaluation and Mathematical Modeling

Martina Martínez, Beatriz Gullón, Remedios Yáñez, José Luis Alonso, and Juan Carlos Parajó*

- 5518 Antityrosinase and Antimicrobial Activities of *trans*-Cinnamaldehyde Thiosemicarbazone**
Yu-Jing Zhu, Kang-Kang Song, Zhi-Cong Li, Zhi-Zhen Pan, Yun-Ji Guo, Jing-Jing Zhou, Qin Wang, Bo Liu, and Qing-Xi Chen**
- 5524 Vitamin E Profile as a Reliable Authenticity Discrimination Factor between Chestnut (*Castanea sativa* Mill.) Cultivars**
João C. M. Barreira, Rita C. Alves, Susana Casal, Isabel C. F. R. Ferreira, M. Beatriz P. P. Oliveira, and José Alberto Pereira**
- 5529 Pressure-Aided Proteolysis of β -Casein**
Marieke E. Bruins, Nathalie Creusot, Harry Gruppen, Anja E. M. Janssen, and Remko M. Boom*
- 5535 An Acidophilic β -Galactosidase from *Bispora* sp. MEY-1 with High Lactose Hydrolytic Activity under Simulated Gastric Conditions**
*Hui Wang, Huiying Luo, Yingguo Bai, Yaru Wang, Peilong Yang, Pengjun Shi, Wei Zhang, Yurliu Fan, and Bin Yao**
- 5542 Algerian Pearl Millet (*Pennisetum glaucum* L.) Contains XIP but Not TAXI and TLXI Type Xylanase Inhibitors**
Hind Mokrane, Kurt Gebruers, Johnny Beaugrand, Paul Proost, Boubekeur Nadjemi, Naima Belhanèche-Bensemra, Christophe M. Courtin, and Jan A. Delcour*
- 5549 Glucose-6-phosphate Isomerase Is an Endogenous Inhibitor to Myofibril-Bound Serine Proteinase of Crucian Carp (*Carassius auratus*)**
*Le-Chang Sun, Li-Gen Zhou, Cui-Hong Du, Qiu-Feng Cai, Kenji Hara, Wen-Jin Su, and Min-Jie Cao**
- 5556 Physical-Chemical Analysis of Non-Polyphenol Oxidase (Non-PPO) Darkening in Yellow Alkaline Noodles**
Robert E. Asenstorfer, Marie J. Appelbee, and Daryl J. Mares*
- 5563 Fractionation and Characterization of Brewers' Spent Grain Protein Hydrolysates**
Inge Celus, Kristof Brijs, and Jan A. Delcour*
- 5571 Effect of Exopolysaccharides on the Hydrolysis of β -Lactoglobulin by *Lactobacillus acidophilus* CRL 636 in an *In Vitro* Gastric/Pancreatic System**
*Micaela Pescuma, Elvira Maria Hébert, Michèle Dalgalarrondo, Thomas Haertlé, Fernanda Mozzi, Jean-Marc Chobert, and Graciela Font de Valdez**
- 5578 Enzymatic Hydrolysis of Fructans in the Tequila Production Process**
*Ángela Ávila-Fernández, Xóchitl Rendón-Poujol, Clarita Olvera, Fernando González, Santiago Capella, Araceli Peña-Álvarez, and Agustín López-Munguía**
- 5586 Heat-Treated *Lactobacillus crispatus* KT Strains Reduce Allergic Symptoms in Mice**
*Keisuke Tobita, Hiroyuki Yanaka, and Hajime Otani**
- 5591 Aqueous Extraction of Oil Bodies from Maize Germ (*Zea mays*) and Characterization of the Resulting Natural Oil-in-Water Emulsion**
*Constantinos V. Nikiforidis and Vassilios Kiosseoglou**
- 5597 Molecular Structure and Baking Performance of Individual Glycolipid Classes from Lecithins**
*Patrick L. Selmair and Peter Koehler**

5610 Improvement of the Hypocholesterolemic Activities of Two Common Fruit Fibers by Micronization Processing

*She-Ching Wu, Shiu-Huei Wu, and Chi-Fai Chau**

MOLECULAR NUTRITION

5615 Modulation of Phase II Enzymes by Sulforaphane: Implications for Its Cardioprotective Potential

*Cristina Angeloni, Emanuela Leoncini, Marco Malaguti, Sabrina Angelini, Patrizia Hrelia, and Silvana Hrelia**

5623 Dissimilar *In Vitro* and *In Vivo* Effects of Ellagic Acid and Its Microbiota-Derived Metabolites, Urolithins, on the Cytochrome P450 1A1

Antonio González-Sarrías, María Azorin-Ortuño, María-Joséfa Yáñez-Gascón, Francisco A. Tomás-Barberán, María-Teresa García-Conesa, and Juan-Carlos Espín*

TOXICOLOGY IN AGRICULTURE AND FOOD

5633 26-Week Oral Safety Study in Macaques for Transgenic Rice Containing Major Human T-Cell Epitope Peptides from Japanese Cedar Pollen Allergens

*Eiji Domon, Hidenori Takagi, Sakiko Hirose, Koichi Sugita, Saori Kasahara, Hiroyasu Ebinuma, and Fumio Takaishi**

5639 Quantitative Method for the Measurement of Three Benzofuran Ketones in Rayless Goldenrod (*Isocoma pluriflora*) and White Snakeroot (*Ageratina altissima*) by High-Performance Liquid Chromatography (HPLC)

Stephen T. Lee, T. Zane Davis, Dale R. Gardner, Bryan L. Stegelmeier, and Tim J. Evans*

CORRESPONDENCE/REBUTTAL

5644 Comment on Curcumin Attenuates Acrylamide-Induced Cytotoxicity and Genotoxicity in HepG2 Cells by ROS Scavenging

*Biji T. Kurien**

■ 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.

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>.