



JOURNAL OF

AOAC

INTERNATIONAL

An International
Journal of
Analytical Science



The Scientific
Association Dedicated
to Analytical
Excellence®

JOURNAL OF AOAC INTERNATIONAL

A Peer-Reviewed Journal Publishing Basic and Applied Research in the Analytical Sciences Related to Foods, Drugs, Agriculture, and the Environment

EDITORIAL BOARD

Steven Dentali, Chair
Kaushik Banerjee
Lei Bao
Joseph M. Betz
Joe Boison
Paula N. Brown
Gabriel Giancaspro
Sarwar Gilani
Thomas Hammack
Milan Ihnat
Bert Popping
Marina Torres
Luann Wetzler
Robert E. Rathbone, *Staff Liaison*

JOURNAL EDITORS

Agricultural Materials

Nancy Thiex

Dietary Supplements

Albert E. Pohland

Drug Formulations and Clinical Methods

Samir Wahab

Food Biological Contaminants

Anthony D. Hitchins

Food Chemical Contaminants

Albert E. Pohland

Food Composition and Additives

Sarwar Gilani

Microbiological Methods

Anthony Hitchins

Residues and Trace Elements

Alexander J. Krynskiy

Statistical Analysis

George W. Latimer, Jr

Veterinary Drug Residues

Joe Boison

Acquisitions Editor

Joseph Sherma

JOURNAL STAFF

Publisher: E. James Bradford
Sr Director, Publications: Robert E. Rathbone
Production Manager: Catherine Wattenberg
Production Editors: Jennifer J. Diatz
Tien L. Millor
Chris Bradley

Subscriptions:

Advertising Sales:

AOAC INTERNATIONAL
481 N. Frederick Ave, Suite 500
Gaithersburg, MD 20877, USA
Tel: +1-301-924-7077, Fax: +1-301-924-7089
E-mail: cbradley@aoac.org

AOAC BOARD OF DIRECTORS

President: Mark R. Coleman
President-Elect: James M. Harnly
Treasurer: Jonathan W. DeVries
Secretary: Darryl M. Sullivan
Immediate Past President: Stan W. Bacler
Directors: Arti Arora
Norma R. Hill
Douglas A. Hite
Ronald L. Johnson
Erik J.M. Konings
Xiumei Liu
Directors-at-Large: David Acheson
Robert Brackett
Clay Dettelfsen

Table of Contents

November/December 2012 Vol. 95, No. 6

JAINEE 95(6) 1547–1854 (2012)

57A Cumulative Author Index

INFANT FORMULA AND ADULT NUTRITIONALS

- 1547 Determination of Total Foliates in Infant Formula and Adult Nutritionals by Trienzyme Extraction and UPLC-MS/MS Quantitation: First Action **2011.06**
John Szpylka, Jon DeVries, Andrea Cheney, and Steve House

ANTIOXIDANTS

- 1555 Expert Review Panel Approves First Action Methods for Antioxidants in Foods
James M. Harnly
- 1557 AOAC SMPR 2011.011: Standard Method Performance Requirements for in vitro Determination of Total Antioxidant Activity in Foods, Beverages, Food Ingredients, and Dietary Supplements
- 1558 Application of a Microplate-Based ORAC-Pyrogallol Red Assay for the Estimation of Antioxidant Capacity: First Action **2012.03**
Rocio Ortiz, Mónica Antilén, Hernán Speisky, Margarita E. Aliaga, Camilo López-Alarcón, and Steve Baugh
- 1562 Determination of Antioxidant Activity in Foods and Beverages by Reaction with 2,2'-Diphenyl-1-Picrylhydrazyl (DPPH): Collaborative Study First Action **2012.04**
David W. Plank, John Szpylka, Harry Sapirstein, David Woollard, Charles M. Zapf, Vong Lee, C.-Y. Oliver Chen, Rui Hai Liu, Rong Tsao, André Dusterloh, and Steve Baugh

AGRICULTURAL MATERIALS

- 1570 Rapid Determination of Free Fatty Acid Content in Waste Deodorizer Distillates Using Single Bounce-Attenuated Total Reflectance-FTIR Spectroscopy
Saba Naz, Sayed Tufail Hussain Sherazi, Farah. N. Talpur, Sarfaraz A. Mahesar, and Huseyin Kara

DIETARY SUPPLEMENTS

- 1574 Validation of HPTLC and HPLC Methods for the Quantitative Determination of Allyl Disulfide in Some Polyherbal Oils
Nitin Dubey, Nidhi Dubey, and Rajendra Mehta

Copyright, 2012 by AOAC INTERNATIONAL, Inc. All rights reserved. The *Journal of AOAC INTERNATIONAL* [ISSN 1060-3271 (print), ISSN 1944-7922 (digital)] is published bimonthly by AOAC INTERNATIONAL, 481 N. Frederick Ave, Suite 500, Gaithersburg, MD 20877, USA.
Subscriptions for Vol. 95 (2012) are: Members, \$400.00 in North America, \$490.00 outside North America; Nonmembers, \$560.00 in North America, \$650.00 outside North America. Periodicals postage paid at Gaithersburg, Maryland, USA, and additional mailing offices. Abstracted or indexed in AGRICOLA, Analytical Abstracts, Biological Abstracts, Cambridge Scientific Abstracts, Chemical Abstracts, Current Advances in Ecological Sciences, Current Contents, and others. Printed in USA.
POSTMASTER: Send address changes to *Journal of AOAC INTERNATIONAL*, 481 N. Frederick Ave, Suite 500, Gaithersburg, MD 20877, USA.

- 1579 Detection of Adulterated *Ginkgo biloba* Supplements Using Chromatographic and Spectral Fingerprints
James M. Harnly, Devanand Luthria, and Pei Chen
- 1588 Simultaneous Analysis of Steviol and Steviol Glycosides by Liquid Chromatography with Ultraviolet Detection on a Mixed-Mode Column: Application to *Stevia* Plant Material and *Stevia*-Containing Dietary Supplements
Karolina Jaworska, Alexander J. Krynitsky, and Jeanne I. Rader
- 1597 Quantitative Determination of Cucurbitane-Type Triterpenes and Triterpene Glycosides in Dietary Supplements Containing Bitter Melon (*Momordica charantia*) by HPLC-MS/MS
Jun Ma, Alexander J. Krynitsky, Erich Grundel, and Jeanne I. Rader
- 1609 Evaluation of Cyanocobalamin in Multivitamin Tablets and Their Standard Reference Material 3280 by HPLC with Visible Detection
Teruki Matsumoto, Jun Takebayashi, Yoshiko Ishimi, Chihiro Ozawa, Akira Sano, Takashi Hirota, and Kaori Endoh
- 1614 Thin-Layer Chromatography-Densitometry Analysis of Dimethoxyphenylbutadiene Content in *Zingiber cassumunar* Rhizomes
Prasan Tangyuenyongwatana, Vichien Keeratinijakal, and Wandee Gritsanapan

DISINFECTANTS

- 1618 Performance of the AOAC Use-Dilution Method with Targeted Modifications: Collaborative Study
Stephen F. Tomasino, Albert E. Parker, Martin A. Hamilton, and Gordon C. Hamilton

DRUG FORMULATIONS AND CLINICAL METHODS

- 1629 Determination of Ambroxol Hydrochloride, Guaifenesin, and Theophylline in Ternary Mixtures and in the Presence of Excipients in Different Pharmaceutical Dosage Forms
Nada S. Abdelwahab
- 1639 Chiral Chromatography Studies of Chemical Behavior of Cinacalcet on Polysaccharide Chiral Reversed-Phase HPLC Stationary Phases
Michal Douša and Jiří Břicháč
- 1644 Application of Quantitative Nuclear Magnetic Resonance Spectroscopy for the Determination of Amantadine and Acyclovir in Plasma and Pharmaceutical Samples
Alaa A. Salem, Ibrahim M. Abdou, and Habiba A. Saleh

FOOD BIOLOGICAL CONTAMINANTS

- 1652 Digoxigenin-Labeled Probe-Based Colony Blotting Assay for Rapid Quantification of *Salmonella* Serovars in Seafood
Rakesh Kumar and K.V. Lalitha
- 1656 Samsung *Salmonella* Detection Kit
Jun Li, Win Den Cheung, Jason Opdyke, John Harvey, Songchun Chong, and Cheol Gon Moon
- 1669 Comparative Evaluation of a Phage Protein Ligand Assay with VIDAS and BAX Methodology for Detection of *Escherichia coli* O157:H7 Using a Standard Nonproprietary Enrichment Broth
Jingzhang Lu, Mujin Tang, Huiling Liu, Lihua Huang, Zhigang Wan, Heng Zhang, and Fang Zhao
- 1672 Roka *Listeria* Detection Method Using Transcription Mediated Amplification to Detect *Listeria* Species in Select Foods and Surfaces
Hua Yang, Shannon Kaplan, Michael Reshatoff, Ernie Hu, Alexis Zukowski, Franz Schweis, Cristal Gin, Brett Maroni, Michael Becker, and Michele Wisniewski

FOOD CHEMICAL CONTAMINANTS

- 1689 Determination of Aflatoxins B₁, B₂, G₁, and G₂ in Olive Oil, Peanut Oil, and Sesame Oil Using Immunoaffinity Column Cleanup, Postcolumn Derivatization, and Liquid Chromatography/Fluorescence Detection: Collaborative Study
Lei Bao, Chengzhu Liang, Mary W. Trucksess, Yanli Xu, Ning Lv, Zhenxing Wu, Ping Jing, and Fred S. Fry
- 1701 Analysis of Deoxynivalenol, Zearalenone, T-2, and HT-2 Toxins in Animal Feed by LC/MS/MS—A Critical Comparison of Immunoaffinity Column Cleanup with No Cleanup
Hamide Z. Senyuva, John Gilbert, Gözde Türköz, David Leeman, and Carol Donnelly
- 1709 A Sensitive Gas Chromatography-Mass Spectrometry Method for the Determination of Patulin in Apple Juice
Hong Xiao and Shanlin Fu

FOOD COMPOSITION AND ADDITIVES

- 1713 GMOMETHODS: The European Union Database of Reference Methods for GMO Analysis
Laura Bonfini, Marc H. Van den Bulcke, Marco Mazzara, Enrico Ben, and Alexandre Patak
- 1720 Changes of the Wax Contents in Mixtures of Olive Oils as Determined by Gas Chromatography with a Flame Ionization Detector
Gassan Hodaifa, Leopoldo Martínez Nieto, Juan L. Lozano, and Sebastián Sánchez
- 1725 Analytical Determination of Bioactive Compounds as an Indication of Fruit Quality
Yong Seo Park, Buk-Gu Heo, Kyung-Sik Ham, Seong-Gook Kang, Yang-Kyun Park, Alina Nemirovski, Zeev Tashma, Shela Gorinstein, Hanna Leontowicz, and Maria Leontowicz
- 1733 Qualitative and Event-Specific Real-Time PCR Detection Methods for *Bt* Brinjal Event EE-1
Gurinder Jit Randhawa, Ruchi Sharma, and Monika Singh
- 1740 Inconsistencies in a Highly Polar Capillary Gas Chromatography Column and Necessity of Column Performance Checks for *trans* Fatty Acid Measurement
Wakako Tsuzuki
- 1744 Method Development and Validation for Ultra-High-Pressure LC/MS/MS Determination of Hop Prenylflavonoids in Human Serum
Yang Yuan, Xi Qiu, Dejan Nikolic, Jeffrey H. Dahl, and Richard B. van Breemen

MICROBIOLOGICAL METHODS

- 1750 Analysis of the Bacterial Diversity Existing on Animal Hide and Wool: Development of a Preliminary PCR-Restriction Fragment Length Polymorphism Fingerprint Database for Identifying Isolates
Chen Yu, Gao Hongwei, Zhang Yanming, Deng Mingjun, Wu Zhenxing, Zhu Laihua, Duan Qing, Xu Biao, Liang Chengzhu, Yue Zhiqin, and Xiao Xizhi

RESIDUES AND TRACE ELEMENTS

- 1755 Quantification of Arsenic in Dialysate Solution and Scalp Hair Samples of Kidney Failure Patients by Cloud Point Extraction and Electrothermal Atomic Absorption Spectroscopy
Jameel A. Baig, Tasneem G. Kazi, Mohammad Balal Arain, Hassan Imran Afridi, and Khalida Perveen Mahar
- 1761 Comparison of Activated Carbon and Oxidized Multiwalled Carbon Nanotubes Modified with Bis (3-Nitrobenzylidene)-1,2-Ethanediamine for Enrichment of Trace Amounts of Some Metal Ions
Mehrorang Ghaedi, Mortaza Montazerzohori, Maryann Tabatabaie, Hamid Noormohamadi, and Alireza Borhan Haghighi
- 1768 Analysis of Triazole-Based Metabolites in Plant Materials Using Differential Mobility Spectrometry to Improve LC/MS/MS Selectivity
Julia Jasak, Yves Le Blanc, Karl Speer, Patrick Billian, and Ralf M. Schoening

- 1777 Multiresidue Method for Pesticide Residue Analysis in Food of Animal and Plant Origin Based on GC or LC and MS or MS/MS
Eva Muñoz, Gloria Muñoz, Laura Pineda, Eulalia Serrahima, and Francesc Centrich
- 1797 Cloud Point Extraction and Flame Atomic Absorption Spectrometry Determination of Lead (II) in Environmental and Food Samples
Mustafa Soylak, Erkan Yilmaz, Mehrorang Ghaedi, Mortaza Montazerzohori, and Marjan Sheibani

STATISTICAL ANALYSIS

- 1803 The Characteristic Function, a Method-Specific Alternative to the Horwitz Function
Michael Thompson

VETERINARY DRUG RESIDUES

- 1807 Validation of the Delvotest[®] SP NT
Stephen L.A. Hennart and John Faragher

INDEXES

- 1816 Author Index
1829 Subject Index