# 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**

Joseph M. Betz, Chair Sarwar Gilani, Past Chair Swapan K. Banerjee Lei Bao Joe Boison Paula N. Brown Amit Chandra Steven Dentali Brendon Gill James D. House James Hungerford Holly Johnson Melissa Phillips Bert Popping Richard van Breemen Guodong Zhang Robert E. Rathbone, Staff Liaison

#### JOURNAL EDITORS

Animal and Plant Nutrition, Health, and Safety Nancy Thiex Dietary Supplements Albert E. Pohland and Paula N. Brown Drug Formulations and Clinical Methods Samir Wahab and Joe Boison Food Biological Contaminants Anthony D. Hitchins Food Chemical Contaminants Albert E. Pohland and Sarwar Gilani Food Composition and Additives Sarwar Gilani Infant Formula and Adult Nutritionals Sarwar Gilani Microbiological Methods Anthony D. Hitchins Residues and Trace Elements Alexander J. Krynitsky Statistics and Chemometrics George W. Latimer, Jr

Acquisitions Editor Joseph Sherma JOURNAL STAFF

Veterinary Drug Residues

Publisher: Joπathan J. Goodwin Sr Director, Publications: Robert E. Rathbone Production Manager: Jennifer Diatz Production Editor: Tien L. Milor Subscriptions Chris Bradley

Advertising Sales: 2275 Research Blvd, Suite 300 Rockville, MD 20850, USA Tel: +1-301-924-7077, Fax: +1-301-924-7089 E-mail; cbradley@aoac.org

#### AOAC BOARD OF DIRECTORS

President: DeAnn L. Benesh Past President: Ronald L. Johnson Brad Goskowicz President-Flect: Treasurer: Jonathan W. DeVries, Sr. Darryl M. Sullivan Secretary: Directors: Lei Bao Michael H. Brodsky Clay Detlefsen, Esq.

Samuel Benrejeb Godefroy Anthony J. Lupo Slephen A. Wise

Director at Large:

Daniel S. Fabricant Daniel Schmitz

# **Table of Contents**

July/August 2018 Vol. 101, No. 4

JAINEE 101(4) 905-1284 (2018)

35A Cumulative Author Index 39A Instructions for Authors

#### SPECIAL REPORT

Biennial Review of Planar Chromatography: 2015-2017 905 Joseph Sherma

#### SPECIAL GUEST EDITOR SECTION

914 Analytical Approaches and Safety Evaluation Strategies for Antibiotics and Antimicrobial Agents in Food Products: Chemical and Biological Solutions Salvatore Parisi

916 Antibiotic Resistance in Escherichia coli from Farm Livestock and Related Analytical Methods: A Review Giorgia Caruso

923 Food Crises and Food Safety Incidents in European Union, United States, and Maghreb Area: Current Risk Communication Strategies and New Approaches Nadia Chammem, Manel Issaoui, Ana Isabel Dâmaso De Almeida, and Amélia Martins Delgado

Vitamin D Dietary Supplementation: Relationship with Chronic Heart Failure 939 Giuseppe Dattilo, Matteo Casale, Emanuela Avventuroso, and Pasqualina Laganà

942 Antimicrobial Substances for Food Packaging Products: The Current Situation Alessandra Pellerito, Sara M. Ameen, Maria Micali, and Giorgia Caruso

948 Studies on Antimicrobial Activity and Kinetics of Inhibition by Plant Products in India (1990-2016)Ramesh Kumar Sharma and Bhupendra Kumar Rana

956 Antimicrobial Potential of Sicilian Honeys Against Staphylococcus aureus and Pseudomonas aeruginosa Maria Anna Coniglio, Pasqualina Laganà, Giuseppina Faro, and Marina Marranzano

960 Identification and Assessment of the Behavior of Methicillin-Resistant Staphylococci in Cheese Izabela Steinka

Copyright, 2018 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, 2275 Research Blvd, Suite 300, Rockville, MD, 20850 USA. Subscriptions for Vol. 101 (2018) are: Members, \$470.00 in North America, \$570.00 outside North America; Nonmembers, \$690.00 in North America, \$810.00 outside North America Periodicals postage paid at Rockville, 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, 2275 Research Blvd, Suite 300, Rockville, MD, 20850 USA.

#### **DIETARY SUPPLEMENTS**

- Determination of Alkaloids in Mitragyna speciosa (Kratom) Raw Materials 964 and Dietary Supplements by HPLC-UV: Single-Laboratory Validation, First Action 2017.14 Elizabeth M. Mudge and Paula N. Brown
- 967 Ultrasound-Assisted Extraction of Anthocyanins from Red Rose Petals and New Spectrophotometric Methods for the Determination of Total Monomeric Anthocyanins Mahmure Üstün Özgür and Emrah Çimen

#### DRUG FORMULATIONS AND CLINICAL METHODS

- 981 Resolution and Quantitation of Triamcinolone Acetonide and Its Coformulated Drug in the Presence of Its Impurities and Degradation Products by HPTLC and HPLC Samah S. Abbas, Maha A. Hegazy, Hassan A.M. Hendawy, Soheir A. Weshahy, and May H. Abdelwahab
- 993 Validated HPLC-DAD Method for the Simultaneous Determination of Six Selected Drugs Used in the Treatment of Glaucoma Mostafa M. Baker and Tarek S. Belal
- 1001 Multivariate Validated Models for Simultaneous Determination of Ibuprofen and Famotidine in the Presence of Related Substances Eman S. Elzanfaly, Hala E. Zaazaa, Aya T. Soudi, and Maissa Y. Salem
- Kinetic Profiling of the Hydrolytic Reaction of Benazepril; Metabolic Pathway 1009 Simulation A. Hemdan and Adel M. Michael
- 1015 Chemometric-Assisted Spectrophotometric Method for the Simultaneous Quantitative Determination of Ezetimibe and Simvastatin in Their Combined Dosage Forms Fernanda Heringer De Souza, Vitor Todeschini, and Maximiliano Da Silva Sangoi
- 1021 Development and Validation of a Novel Stability-Indicating Reversed-Phase Ion-Pair Chromatographic Method for the Quantitation of Impurities in Marbofloxacin Tablets Priyanka Maheshwari, Neelima Shukla, and Manish Kumar Dare
- 1031 A Validated High-Performance Thin-Layer Chromatographic Method for the Simultaneous Determination of Zofenopril Calcium and Hydrochlorothiazide in the Presence of the Hydrochlorothiazide Impurities: Chlorothiazide and Salamide Mamdouh R. Rezk, Ahmed S. Fayed, Hoda M. Marzouk, and Samah S. Abbas

# FOOD BIOLOGICAL CONTAMINANTS

- Evaluation of the iQ-Check® Salmonella II Assay in Select Foods: Collaborative Study, 1043 First Action 2017.06 Patrick Bird, M. Joseph Benzinger Jr., Benjamin Bastin, Erin Crowley, James Agin, David Goins, Mike Clark, Jean-Philippe Tourniaire, Sophie Pierre, and Wendy Lauer
- 1059 Evaluation of the Thermo Scientific RapidFinder™ Salmonella Species, Typhimurium, and Enteritidis Multiplex PCR Kit Emma Scopes, Jessica Screen, Katharine Evans, David Crabtree, Annette Hughes, Mikko Kaupinen, Jonathan Flannery, Patrick Bird, M. Joseph, Benzinger, Jr, James Agin, and David Goins

#### FOOD COMPOSITION AND ADDITIVES

Determination of Ethanol in Kombucha, Juices, and Alcohol-Free Beer by Enzytee<sup>TM</sup> 1101 Liquid Ethanol: Single-Laboratory Validation, First Action 2017.07 Markus Lacorn and Thomas Hektor

# **INFANT FORMULA AND ADULT NUTRITIONALS**

Vitamin B<sub>12</sub> (Cyanocobalannin) in Infant Formula Adult/Pediatric Nutritional Formula by Liquid Chromatography with Ultraviolet Detection: Collaborative Study, Final Action 2014.02 Ester Campos Giménez and Frédéric Martin

# MICROBIOLOGICAL METHODS

- 1119 Clostridium difficile: Epidemiology, Pathogenicity, and an Update on the Limitations of and Challenges in Its Diagnosis

  Abdullah A. Alyousef
- 1127 From Commensal to Consumer: Staphylococcus aureus Toxins, Diseases, and Detection Methods

  Angela T. Nguyen and Sandra M. Tallent
- 1135 Rapid Detection of Staphylococcus aureus and Related Species Isolated from Food, Environment, Cosmetics, a Medical Device, and Clinical Samples Using the VITEK MS Microbial Identification System

  Irshad M. Sulaiman, Pratik Banerjee, Ying-Hsin Hsieh, Nancy Miranda, Steven Simpson, and Khalil Kerdahi

#### **RESIDUES AND TRACE ELEMENTS**

- 1145 Collective Ion-Pair Single-Drop Microextraction Attenuated Total Reflectance Fourier Transform Infrared Spectroscopic Determination of Perchlorate in Bioenvironmental Samples Swati Chandrawanshi, Santosh K. Verma, and Manas K. Deb
- Screening of 485 Pesticide Residues in Fruits and Vegetables by Liquid Chromatography-Quadrupole-Time-of-Flight Mass Spectrometry Based on TOF Accurate Mass Database and QTOF Spectrum Library Guo-Fang Pang, Chun-Lin Fan, Qiao-Ying Chang, Jian-Xun Li, Jian Kang, and Mei-Ling Lu
- 1183 Choline Chloride—Oxalic Acid as a Deep Eutectic Solvent—Based Innovative Digestion Method for the Determination of Selenium and Arsenic in Fish Samples

  \*Abdul Haleem Panhwar, Mustafa Tuzen, and Tasneem Gul Kazi\*
- Selective Determination of Diazinon and Chlorpyrifos in the Presence of Their Degradation Products; Application to Environmental Samples Mamdouh R. Rezk, Abd El-Aziz B. Abd El-Aleem, Shaban M. Khalile, and Omneya K. El-Naggar
- 1199 Comparison of Assigned Values from Participants' Results, Spiked Concentrations of Test Samples, and Isotope Dilution Mass Spectrometric Results in Proficiency Testing for Pesticide Residue Analysis

  Takashi Yarita, Takamitsu Otake, Yoshie Aoyagi, Noriko Takasaka, Tatsuya Suzuki, and Takaho Watanabe

# STATISTICAL ANALYSIS AND CHEMOMETRIC METHODS

1205 Validation and Measurement Uncertainty Assessment of a Microbiological Method Using Generalized Pivotal Quantity Procedure and Monte-Carlo Simulation Saad Alaoui Sossé, Taoufiq Saffaj, and Bouchaib Ihssane

# EXTENDED ABSTRACT

1212 Are LOD and LOQ Reliable Parameters for Sensitivity Evaluation of Spectroscopic Methods?
Saba Ershadi and Ali Shayanfar

# SHORT COMMUNICATION

1215 Improvement of Versatility and Analytical Range of AOAC Official Method 2015.06 for Naoto Hieda, Mariko Nagatoshi, Yoshihiro Ikeuchi, Yoshinori Iga, and Tetsuhisa Goto

# **LIST OF STANDARDS**

1219 List of Standards Including Standard Method Performance Requirements (SMPRs  $^{\circledR}$ ) and Corresponding AOAC First and Final Action Official Methods  $^{SM}$