

Journal of Apicultural Research

Volume 59 Number 2 2020

Contents

Hive product science

Defining the standards for medical grade honey

Renée Hermanns, Cristina Mateescu, Andreas Thrasyvoulou, Chrysoula Tananaki, Frank A.D.T.G. Wagener, and Niels A.J. Cremers

125

Polyphenols in Brazilian organic honey and their scavenging capacity against reactive oxygen and nitrogen species

Camila F. Silva, Pedro L. Rosalen, Jackeline C. Soares, Adna P. Massarioli, Luciano H. Campestrini, Renata A. Semarini, Masaharu Ikegaki, and Severino M. Alencar

136

An evaluation of FTIR spectroscopy for prediction of royal jelly content in hive products

Nur Cebi, Fatih Bozkurt, Mustafa Tahsin Yilmaz, and Osman Sagdic

146

Microbiological and chemical characterization of bee pollen throughout the production process in the Southwest of Buenos Aires Province (Argentina)

Leticia A. Fernández, Juliana Susca Tromba, Adriana M. Alippi, Fernando M. López, Mónica Pérez, and Liliana M. Gallez

156

Comparative study of antibiofilm, cytotoxic activity and chemical composition of Algerian propolis

Amina Daikh, Narimane Segueni, Nazime Mercan Dogan, Sevki Arslan, Dogukan Mutlu, Ibrahim Kivrak, Salah Akkal, and Salah Rhouati

160

Physiology

Seasonal variation of flavonoid content in bee bread: Potential impact on hypopharyngeal gland development in *Apis mellifera* honey bees

Thaís de Souza Bovi, André Caeiro, Sérgio Alexandre Alcantara dos Santos, Rodrigo Zaluski, Alex Junji Shinohara, Giuseppina Pace Pereira Lima, Maria da Graça Ribeiro Campos, Luis Antonio Justulin Junior, and Ricardo de Oliveira Orsi

170

Aquaporin and aquaglyceroporin genes have different expression levels in the digestive tract and Malpighian tubules of honey bee nurses and foragers (*Apis mellifera*)

Débora Linhares Lino de Souza, Weyder Cristiano Santana, José Cola Zanuncio, and José Eduardo Serrão

178

Breeding and genetics	
Hygienic behavior in honey bees and prediction of <i>Varroa</i> non-reproduction in single-drone inseminated (SDI) colonies	
Julien Perrin, Abdelhak Boukadiri, Pascal Boyard, Jean-Baptiste Soubelet, and Jean Xavier Mazoit	185
Pathology and parasitology	
The first detection of <i>Braula coeca</i> in honey bee colonies in Uganda	
Moses Chemurot, Dirk C. de Graaf	193
Prevalence and geographical distribution of <i>Nosema apis</i> and <i>Nosema ceranae</i> in apiaries of Northwest Mexico using a duplex real-time PCR with melting-curve analysis	
Sergio Arturo Cueto González, Gilberto López Valencia, Carolina Orozco Cabrera, Sergio Daniel Gómez Gómez, Katty Moreno Torres, Kelvin Orlando Espinoza Blandón, José Guadalupe Guerrero Velázquez, Laura Elena Silva Paz, Enrique Trasviña Muñoz, and Francisco Javier Monge Navarro	195
Fumigant toxicity of eleven Chinese herbal essential oils against an ectoparasitic mite (<i>Varroa destructor</i>) of the honey bee (<i>Apis mellifera</i>)	
Zheguang Lin, Xiaoling Su, Shuai Wang, Ting Ji, Fu-Liang Hu, and Huo-Qing Zheng	204
Detection and replication of deformed wing virus and black queen cell virus in parasitic mites, <i>Varroa destructor</i>, from Iranian honey bee (<i>Apis mellifera</i>) colonies	
Qodratollah Sabahi, Nuria Morfin, Gholamali Nehzati-Paghaleh, and Ernesto Guzman-Novoa	211
Quantitative PCR (qPCR) vs culture-dependent detection to assess honey contamination by <i>Paenibacillus larvae</i>	
Simone Crudele, Luciano Ricchiuti, Addolorato Ruberto, and Franca Rossi	218
Ecology and conservation	
Stinging risk and sting pain of the ivy bee, <i>Colletes hederarum</i>	
Georgia Hennessy, Nicholas J. Balfour, Kyle Shackleton, Dave Goulson, Francis L.W. Ratnieks	223
Floral resources provided by the new energy crop, <i>Silphium perfoliatum</i> L. (Asteraceae)	
Anna Lena Mueller, Andrea Biertümpfel, Lennart Friedritz, Eileen F Power, Geraldine A Wright, and Jens Dauber	232
Prevalence and abundance of bees visiting major conventionally-managed agricultural crops in Brazil	
Helen Thompson, Christof Schneider, Christian Maus, Camila Camata, and Carolina Wolff	246