

Online submission at: www.editorialmanager.com/ber

Volume 110
Issue 2
April 2020

Bulletin of
Entomological
Research



CAMBRIDGE
UNIVERSITY PRESS

ISSN 0007-4853

Bulletin of Entomological Research

journals.cambridge.org/ber

Aims and Scope

Established in 1910, the internationally recognised *Bulletin of Entomological Research* aims to further global knowledge of entomology through the generalisation of research findings rather than providing more entomological exceptions. The *Bulletin* publishes high quality and original research papers, 'critiques' and review articles concerning insects or other arthropods of economic importance in agriculture, forestry, stored products, biological control, medicine, animal health and natural resource management. The scope of papers addresses the biology, ecology, behaviour, physiology and systematics of individuals and populations, with a particular emphasis upon the major current and emerging pests of agriculture, horticulture and forestry, and vectors of human and animal diseases. This includes the interactions between species (plants, hosts for parasites, natural enemies and whole communities), novel methodological developments, including molecular biology, in an applied context. The *Bulletin* does not publish the results of pesticide testing or traditional taxonomic revisions.

Bulletin of Entomological Research is published bimonthly by
Cambridge University Press

Editor-in-Chief

Dr Paul De Barro

CSIRO Health & Biosecurity, Brisbane,
Queensland 4001, Australia
Email: entomology@cambridge.org

Subject Editors

- | | |
|---|--|
| Dr T. Backeljau, <i>Royal Belgian Institute of Natural Sciences, Belgium</i> | Dr E. Roditakis, <i>National Agricultural Research Foundation, Greece</i> |
| Dr L. Boykin, <i>University of Western Australia, Australia</i> | Dr D. Segura, <i>National Institute of Agricultural Technology (INTA), Argentina</i> |
| Professor M. Chen, <i>Northwest A&F University, China</i> | Dr Zhentao Sheng, <i>University of Chicago, USA</i> |
| Dr Chen Xue-Xin, <i>Zhejiang University, China</i> | Professor P. Stevenson, <i>Royal Botanic Gardens, Kew, UK</i> |
| Dr S. Downes, <i>CSIRO, Ecosystem Sciences, Australia</i> | Professor J-H. Sun, <i>Chinese Academy of Sciences, China</i> |
| Dr E. Gray, <i>Colorado College, USA</i> | Dr W.T. Tay, <i>CSIRO Black Mountain Labs, Australian Capital Territory, Australia</i> |
| Dr A. K-W. Hee, <i>Universiti Putra Malaysia, Malaysia</i> | Professor A. Tena, <i>Valencian Institute for Agricultural Research, IVIA, Spain</i> |
| Dr H. Hesketh, <i>Centre for Ecology and Hydrology, UK</i> | Dr L. Thomson, <i>University of Melbourne, Australia</i> |
| Dr B. Hoffmann, <i>CSIRO, Ecosystem Sciences, Australia</i> | Professor P. Trematerra, <i>University of Molise, Italy</i> |
| Professor M. Isman, <i>University of British Columbia, Canada</i> | Dr B. Trewin, <i>CSIRO, Australia</i> |
| Dr T.H. Jones, <i>Cardiff University, UK</i> | Dr M. Virgilio, <i>Royal Museum for Central Africa, Belgium</i> |
| Dr A. Kapranas, <i>Maynooth University, Ireland</i> | Dr K. Wallin, <i>University of Vermont, USA</i> |
| Dr E. Kistner-Thomas, <i>USDA Midwest Climate Hub, USA</i> | Dr X.-W. Wang, <i>Zhejiang University, Hangzhou, China</i> |
| Dr D. Kriticos, <i>CSIRO Black Mountain Labs, Australian Capital Territory, Australia</i> | Dr S. L. Wee, <i>Universiti Kebangsaan Malaysia, Malaysia</i> |
| Dr O. Kwon, <i>Kyungpook National University, Korea</i> | Dr C. Weldon, <i>University of Pretoria, South Africa</i> |
| Dr S. Lawson, <i>University of the Sunshine Coast, Australia</i> | Dr X.-Y. Hong, <i>Department of Plant Protection, Nanjing Agricultural University, Nanjing</i> |
| Professor C-Y. Lee, <i>Universiti Sains Malaysia, Malaysia</i> | Dr S. Yang, <i>Research Institute for Sustainable Humanosphere (RISH), Japan</i> |
| Dr N. V. Meyling, <i>University of Copenhagen, Denmark</i> | Dr M. Yazdani, <i>University of Adelaide, Australia</i> |
| Professor B. Nault, <i>Cornell University, USA</i> | Professor W. Zhang, <i>Sun Yat-sen University, China</i> |
| Dr M. Pappas, <i>Democritus University of Thrace, Greece</i> | |
| Dr D. Perez-Staples, <i>INBIOTECA, Universidad Veracruzana, Mexico</i> | |
| Dr C. Phillips, <i>AGResearch, New Zealand</i> | |
| Dr C. Robin, <i>University of Melbourne, Australia</i> | |

© Cambridge University Press 2020.

Printed in Great Britain by Bell & Bain, Glasgow.

This journal issue has been printed on FSC™-certified paper and cover board. FSC is an independent, non-governmental, not-for-profit organization established to promote the responsible management of the world's forests. Please see www.fsc.org for information.

Cover image: Colony of the African root and tuber scale *Stictococcus vayssierei* Richard, 1971 (Hemiptera: Stictococcidae) infesting cassava (*Manihot esculenta* Crantz) stems.

Photo taken by: Armand R.P.F. Doumtsop.

Research Papers

- Yu Wang, Jing Nan Wang, Xue Zhun Chen, Qi Xing Hu, Qi Qing Liu and Gang Wu**
Heat stress-induced expression of *Px-pdrg* and *Px-aspp2* in insecticide-resistant and -susceptible *Plutella xylostella* 177
- Welma Pieterse, Aruna Manrakhan, John S. Terblanche and Pia Addison**
Comparative demography of *Bactrocera dorsalis* (Hendel) and *Ceratitis capitata* (Wiedemann) (Diptera: Tephritidae) on deciduous fruit 185
- H. Weaving, B. Sands and R. Wall**
Reproductive sublethal effects of macrocyclic lactones and synthetic pyrethroids on the dung beetle *Ontobopagus similis* 195
- J. Soleño, L.B. Parra-Morales, L. Cichón, S. Garrido, N. Guñazú and C.M. Montagna**
Occurrence of pyrethroid resistance mutation in *Cydia pomonella* (Lepidoptera: Tortricidae) throughout Argentina 201
- A.G.A. Azrag, A.A. Yusuf, C.W.W. Pirk, S. Niassy, K.K. Mbugua and R. Babin**
Temperature-dependent development and survival of immature stages of the coffee berry borer *Hypothenemus hampei* (Coleoptera: Curculionidae) 207
- S.H. Mobarak, N. Roy and A. Barik**
Two-sex life table and feeding dynamics of *Spilosoma obliqua* Walker (Lepidoptera: Arctiidae) on three green gram cultivars 219
- Paroma Mitra, Syed Husne Mobarak, Rahul Debnath and Anandamay Barik**
The role of *Lathyrus sativus* flower surface wax in short-range attraction and stimulant for nymph laying by an adult viviparous aphid 231
- I. Garrido-Jurado, G. Resquín-Romero, M. Yousef-Naef, A. Ríos-Moreno and E. Quesada-Moraga**
Soil drenching with entomopathogenic fungi for control of the soil-dwelling life stages and adults of the same generation of *Spodoptera littoralis* (Boisd.) (Lepidoptera: Noctuidae) 242
- Anna Wróblewska-Kurdyk, Katarzyna Dancewicz, Anna Gliszczyńska and Beata Gabryś**
New insight into the behaviour modifying activity of two natural sesquiterpenoids farnesol and nerolidol towards *Myzus persicae* (Sulzer) (Homoptera: Aphididae) 249
- Mohammadreza Lashkari, Daniel Burckhardt and Roghayeh Shamsi Gushki**
Molecular and morphometric identification of pistachio psyllids with niche modeling of *Agonoscena pistaciae* (Hemiptera: Aphalaridae) 259
- S. Pineda, O. Hernández-Quintero, Y. B. Velázquez-Rodríguez, E. Viñuela, J. I. Figueroa, S. I. Morales and A. M. Martínez-Castillo**
Predation by *Engytatus varians* (Distant) (Hemiptera: Miridae) on *Bactericera cockerelli* (Sulzer) (Hemiptera: Triozidae) and two *Spodoptera* species 270
- Simón Farah, Matheus Rakes, Diego Portalanza, Dori E. Nava, Angelica Durigon, Anderson D. Grützmacher, Nivia Dias-Pini and Mariuxi Gómez-Torres**
Effects of toxic baits and food-based attractants for fruit flies on the parasitoid *Fopius arisanus* (Sonan) (Hymenoptera: Braconidae) 278
- Saeideh Esmaeily, Mohammad Amin Samih and Hamzeh Izadi**
Induced eggplant resistance against *Trialeurodes vaporariorum* triggered by jasmonic acid, abscisic acid, and *Nesidiocoris tenuis* feeding 285
- Armand R. P. F. Doumtop, Rachid Hanna, Maurice Tindo, Willy K. Tata-Hangy, Apollin K. Fotso, Komi K. M. Fiaboe, Abraham Fomena, Adolph Kemga and Benjamin B. Normark**
Geographic distribution and abundance of the Afrotropical subterranean scale insect *Stictococcus vayssierei* (Hemiptera: Stictococcidae), a pest of root and tuber crops in the Congo basin 293

Bulletin of *Entomological Research*

Volume 110, 2020

ISSN: 0007-4853

cambridge.org/ber

Publishing, Production, Marketing, and

Subscription Sales Office:

Cambridge University Press
UPH
Shaftesbury Road
Cambridge CB2 8BS
UK

For Customers in North America:

Cambridge University Press
Journals Fulfillment Dept
1 Liberty Plaza, Floor 20
New York
NY 10006
USA

Bulletin of Entomological Research is an international journal published bimonthly by Cambridge University Press in February, April, June, August, October and December.

Subscription information:

The subscription rates for Volume 110, 2020 (6 issues):

Print and electronic access: £1639 (UK), (USA, Canada and Mexico US \$2788)

Electronic-only price: £1216 (UK), (USA, Canada and Mexico US \$2070)

The online edition is available at www.journals.cambridge.org/ber with free table of contents alert (upon registration).

Any **supplements** to this journal published in the course of the annual volume are normally supplied to subscribers at no extra charge.

Back Volumes are available. Please contact Cambridge University Press for further information.

Claims for non-receipt of journal issues will be considered on their merit and only if the claim is received within six months of publication. Replacement copies supplied after this date will be chargeable.

US Postmasters: please send address corrections to Bulletin of Entomological Research
Cambridge University Press
1 Liberty Plaza, Floor 20
New York
NY 10006
USA

Information for Authors

Manuscripts should be submitted online at <http://www.editorialmanager.com/ber>. New users should register before submitting a manuscript.

Further information about submission is available from the publisher at the given address and is printed on the inside back cover.

Offprints: The author (or main author) of an accepted paper will receive a free PDF of their paper. Paper offprints are available for a fee and should be ordered at proof stage. No page charges are levied by this journal.

Copying: This journal is registered with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA. Organisations in the USA who are registered with the CCC may therefore copy material (beyond the limits permitted by sections 107 and 108 of USA copyright law) subject to payment to the CCC of the per copy fee of \$16.00. This consent does not extend to multiple copying for promotional or commercial purposes. Code 0007-4853/2020/\$16.00. Organisations authorised by the Copyright Licensing Agency may also copy material subject to the usual conditions. *For all other use*, permission must be sought from Cambridge or the American Branch of Cambridge University Press.

Disclaimer: The information contained herein, including any expression of opinion and any projection or forecast, has been obtained from or is based upon sources believed by us to be reliable, but is not guaranteed as to accuracy or completeness. The information is supplied without obligation and on the understanding that any person who acts upon it or otherwise changes his/her position in reliance thereon does so entirely at his/her own risk.

Cambridge University Press does not accept responsibility for any trade advertisement included in this publication.

Typeset by Nova Techset Private Limited, Chennai, India, and printed in the UK by Bell & Bain Ltd, Glasgow.