



Zootaxa 3632 (1): 001–107
www.mapress.com/zootaxa/

Copyright © 2013 Magnolia Press

Monograph

ISSN 1175-5326 (print edition)

ZOOTAXA

ISSN 1175-5334 (online edition)

<http://dx.doi.org/10.11646/zootaxa.3632.1.1>

<http://zoobank.org/urn:lsid:zoobank.org:pub:7BE28464-2EC4-4621-8791-79312948C8C9>

ZOOTAXA

3632

A review of the mealybugs (Hemiptera: Coccoidea: Pseudococcidae, Putoidae and Rhizoecidae) of Iran, with descriptions of four new species and three new records for the Iranian fauna

MASUMEH MOGHADDAM

Insect taxonomy Research Department, Iranian Research Institute of Plant Protection, Tehran, IRAN

E-mail: moghadam@iripp.ir; moghaddamm2002@yahoo.com



Magnolia Press
Auckland, New Zealand

Accepted by C. Hodgson: 30 Jan. 2013; published: 22 Mar. 2013

MASUMEH MOGHADDAM

A review of the mealybugs (Hemiptera: Coccoidea: Pseudococcidae, Putoidae and Rhizoecidae) of Iran, with descriptions of four new species and three new records for the Iranian fauna

(*Zootaxa* 3632)

107 pp.; 30 cm.

22 Mar 2013

ISBN 978-1-77557-134-6 (paperback)

ISBN 978-1-77557-135-3 (Online edition)

FIRST PUBLISHED IN 2013 BY

Magnolia Press

P.O. Box 41-383

Auckland 1346

New Zealand

e-mail: zootaxa@mapress.com

<http://www.mapress.com/zootaxa/>

© 2013 Magnolia Press

All rights reserved.

No part of this publication may be reproduced, stored, transmitted or disseminated, in any form, or by any means, without prior written permission from the publisher, to whom all requests to reproduce copyright material should be directed in writing.

This authorization does not extend to any other kind of copying, by any means, in any form, and for any purpose other than private research use.

ISSN 1175-5326 (Print edition)

ISSN 1175-5334 (Online edition)

Table of contents

Abstract	4
Introduction	4
History of the study of Pseudococcidae in Iran	5
Materials and methods	7
Key for the separation of Pseudococcidae, Rhizoecidae and Putoidae based on adult female morphology	7
Family PSEUDOCOCCIDAE Heymons	7
Key to genera of Iranian PSEUDOCOCCIDAE	7
Genus <i>ADELOSOMA</i> Borchsenius	10
<i>A. phragmitidis</i> Borchsenius	10
Genus <i>ANTONINA</i> Signoret	10
Key to species of <i>Antonina</i> Signoret	10
<i>A. crawi</i> Cockerell	10
<i>A. graminis</i> (Maskell)	13
Genus <i>BREVENNIA</i> Goux	13
<i>B. rehi</i> (Lindinger)	13
Genus <i>CEROPUTO</i> Šulc	15
<i>C. pilosellae</i> Šulc	15
Genus <i>CHORIZOCOCCUS</i> McKenzie	15
<i>C. viticola</i> Kaydan & Kozár	18
Genus <i>COCCIDOHYSTRIX</i> Lindinger	18
<i>C. burumandi</i> Moghaddam	18
Genus <i>DYSMICOCCUS</i> Ferris	21
Key to species of <i>Dysmicoccus</i> Ferris	21
<i>D. boninsis</i> (Kuwana)	21
<i>D. brevipes</i> (Cockerell)	21
Genus <i>EURYOCCUS</i> Ferris	22
<i>E. tamariscus</i> Williams	22
Genus <i>EXALLOMOCHLUS</i> Williams	25
<i>E. balouchestanensis</i> Moghaddam sp. n.	25
Genus <i>FERRISIA</i> Fullaway	26
<i>F. virgata</i> (Cockerell)	26
Genus <i>FORMICOCOCCUS</i> Takahashi	28
<i>F. robustus</i> (Ezzat & McConnell)	28
Genus <i>KIRITSHENKELLA</i> Borchsenius	31
<i>K. sacchari</i> (Green)	31
Genus <i>MACONELLICOCCUS</i> Ezzat	31
<i>M. hirsutus</i> (Green)	31
Genus <i>NIPAEOCCUS</i> Šulc	32
<i>N. viridis</i> (Newstead)	32
Genus <i>PARACOCCUS</i> Ezzat & McConnell	37
<i>P. burnerae</i> (Brain)	37
Genus <i>PELIOCOCCOPSIS</i> Borchsenius	37
<i>P. priesneri</i> (Laing)	37
Genus <i>PELIOCOCCUS</i> Borchsenius	39
Key to species of <i>Peliococcus</i> Borchsenius	39
<i>P. ilamicus</i> Moghaddam sp. n.	39
<i>P. kimmericus</i> (Kiritshenko)	40
<i>P. talhouki</i> Matile-Ferrero	44
<i>P. turanicus</i> (Kiritshenko)	44
Genus <i>PHENACOCCUS</i> Cockerell	46
Key to species of <i>Phenacoccus</i> Cockerell	46
<i>P. aceris</i> (Signoret)	46
<i>P. arthrophyti</i> Archangelskaya	49
<i>P. betae</i> Moghaddam	49
<i>P. hordei</i> (Lindeman)	52
<i>P. karkasicus</i> Moghaddam sp. n.	52
<i>P. iranica</i> Moghaddam sp. n.	54
<i>P. perillustris</i> Borchsenius	57
<i>P. pumilus</i> Kiritshenko	57
<i>P. salviacus</i> Moghaddam	60
<i>P. solani</i> Ferris	60
<i>P. solenopsis</i> Tinsely	60

Genus <i>PLANOCOCCUS</i> Ferris	63
Key to species of Genus <i>Planococcus</i> Ferris.	63
<i>P. citri</i> (Risso)	63
<i>P. ficus</i> (Signoret)	67
<i>P. vovae</i> (Nasonov)	67
Genus <i>POLYSTOMOPHORA</i> Borchsenius	68
<i>P. arakensis</i> Moghaddam	68
Genus <i>PSEUDOCOCCUS</i> Westwood	71
Key to species of <i>Pseudococcus</i> Westwood	71
<i>P. comstocki</i> (Kuwana)	71
<i>P. cryptus</i> Hempel	74
<i>P. longispinus</i> (Targioni Tozzetti)	74
<i>P. viburni</i> (Signoret)	76
Genus <i>RHODANIA</i> Goux	77
<i>R. aeluropi</i> Williams & Moghaddam	77
Genus <i>SACCHAROCOCCUS</i> Ferris	80
<i>S. sacchari</i> (Cockerell)	81
Genus <i>SPILOCOCCUS</i> Ferris	81
Key to species of <i>Spilococcus</i> Ferris	81
<i>S. alhagii</i> (Hall)	81
<i>S. flavus</i> (Borchsenius)	83
<i>S. mirzayansi</i> (Moghaddam)	83
Genus <i>TRABUTINA</i> Marchal	86
Key to species of <i>Trabutina</i> Marchal	86
<i>T. crassispinosa</i> Borchsenius	86
<i>T. manipara</i> (Hemprich & Ehrenberg)	87
<i>T. serpentina</i> (Green)	89
Genus <i>TRIONYMUS</i> Berg	92
<i>T. multivorus</i> (Kiritschenko)	92
Genus <i>VRYBURGIA</i> De Lotto	92
<i>V. amaryllidis</i> (Bouché)	92
Family PUTOIDAE Tang	94
Genus <i>PUTO</i> Signoret	94
<i>P. superbus</i> (Leonardi)	94
Family RHIZOECIDAE Williams	96
Genus <i>RHIZOECUS</i> Künckel d'Herculis	96
<i>R. albidus</i> Goux	96
Conclusions	98
Acknowledgements	100
References	101

Abstract

Fifty-one species in 27 genera of Pseudococcidae, plus one species of Rhizoecidae and one species of Putoidae have been recorded from Iran based on literature data and on the material in the collection of the Hayk Mirzayans Insect Museum, Iran. Keys to the Iranian genera and species based on adult female morphology are provided and the distribution data of each species and their host-plants are given. Adult females of each species are illustrated in detail. The species *Paracoccus burnerae* (Brain), *Phenacoccus pumilus* (Kiritschenko) and *Ph. hordei* (Lindeman) are recorded for the first time in Iran. Four new species, *Exallomochlus balouchestanensis* Moghaddam **sp. n.**, *Peliococcus ilamicus* Moghaddam **sp. n.**, *Phenacoccus karkasicus* Moghaddam **sp. n.** and *Phenacoccus iranica* Moghaddam **sp. n.** are described.

Key words: Coccoidea, Pseudococcidae, Putoidae, Rhizoecidae, mealybugs, new species, new record, Iran, Palaearctic, systematics, host plants

Introduction

This paper reviews the mealybug species (Pseudococcidae, Putoidae and Rhizoecidae) currently known from Iran. The family Pseudococcidae, commonly known as the mealybugs, is the second largest family within scale insects (Hemiptera: Sternorrhyncha: Coccoidea), with 1992 described species in 262 genera. In addition, Putoidae has 50