ResearchGate

See discussions, stats, and author profiles for this publication at: https://www.researchgate.net/publication/259911332

Rhizoecus cyperalis (Hambleton) (Hemiptera: Rhizoecidae), a new record for Colombia.

Article · December 2013

CITATIONS
3

READS
327

4 authors, including:

Andrea Amalia Ramos Portilla
Instituto Colombiano Agropecuario
24 PUBLICATIONS **213** CITATIONS
SEE PROFILE

Alejandro Caballero
Ludwig-Maximilians-Universität in Munich
24 PUBLICATIONS **101** CITATIONS
SEE PROFILE

Takumasa Kondo
Agrosavia
322 PUBLICATIONS **2,252** CITATIONS
SEE PROFILE

All content following this page was uploaded by Takumasa Kondo on 28 January 2014.

The user has requested enhancement of the downloaded file.

NOTA CIENTÍFICA

Rhizoecus cyperalis (HAMBLETON) (HEMIPTERA: RHIZOECIDAE), A NEW RECORD FOR COLOMBIA

Andrea Amalia Ramos-Portilla
Instituto Colombiano Agropecuario (ICA), Gerencia Seccional Antioquia; Grupo Taxonomía y Sistemática de Insectos, Museo Entomológico UNAB; Facultad de Agronomía, Universidad Nacional de Colombia, Bogotá, Colombia; correo electrónico: andrea.ramos@ica.gov.co, andreaamaliaramos@gmail.com

Alejandro Caballero
Facultad de Agronomía, Universidad Nacional de Colombia, Bogotá, Colombia; correo electrónico: lacaballeror@unal.edu.co

Takumasa Kondo
Corporación Colombiana de Investigación Agropecuaria (CORPOICA), Centro de Investigación Palmira, Laboratorio de entomología, Palmira, Colombia; correo electrónico: takumasa.kondo@gmail.com

The family Rhizoecidae Williams, 1969 (Hodgson 2012) is composed of 244 species of mealybugs distributed in 18 genera (Ben-Dov *et al.* 2013). According to Hambleton (1946) all species in the Rhizoecidae are hypogeal in habit. The soil-inhabiting mealybugs that feed on the roots of plants, although less well-known than those that feed above ground, damage a wide variety of commercially grown, subtropical ornamental plants (Hambleton 1976). In the USA, the following species of *Rhizoecus* Künckel d'Herculais, 1878, have been considered the most damaging: *R. falcifer* Kunckel d'Herculais; *R. kondonis* Kuwana [a junior synonym of *Ripersiella kondonis* (Kuwana)]; *Rhizoecus americanus* (Hambleton); *Rhizoecus simplex* (Hambleton); *Rhizoecus floridanus* Hambleton and *Rhizoecus pritchardi* McKenzie [a junior synomym of *Rhizoecus dianthi* Green] (Hambleton 1976). According to Hambleton (1976), one of the important factors affecting coffee production in several countries of Central and South America is directly related to the feeding of *Rhizoecus* and related mealybugs, and several species have been reported attacking other important crops such as cacao, citrus, cotton and bananas (Hambleton 1976).

The objective of this paper was to report a new species record of *Rhizoecus* for Colombia, briefly diagnose the species, listing some important features that help to differentiate it from closely related species, and to provide an updated list of all *Rhizoecus* species recorded from Colombia.

Samples of hypogeal mealybugs were collected on the roots of potted plants of *Thimus vulgaris* (Lamiaceae), in a greenhouse located at the Universidad Militar Nueva Granada in the city of Cajicá, in the department of Cundina-

marca. The mealybugs were found in high populations causing dieback of the plants. Slide-mounted specimens were prepared according to Williams & Granara de Willink's (1992) protocol with author's modifications. The mealybugs were identified as *Rhizoecus cyperalis* (Hambleton) using the morphological description of Hambleton (1946) and the keys by Kozár & Konczné Benedicty (2007) and Williams & Granara de Willink (1992). The diagnostic features that identify *R. cyperalis* are the absence of a cephalic plate and the presence of tritubular pores on dorsum closely surrounded by 1–4 (usually 3) body setae (Fig. 1).

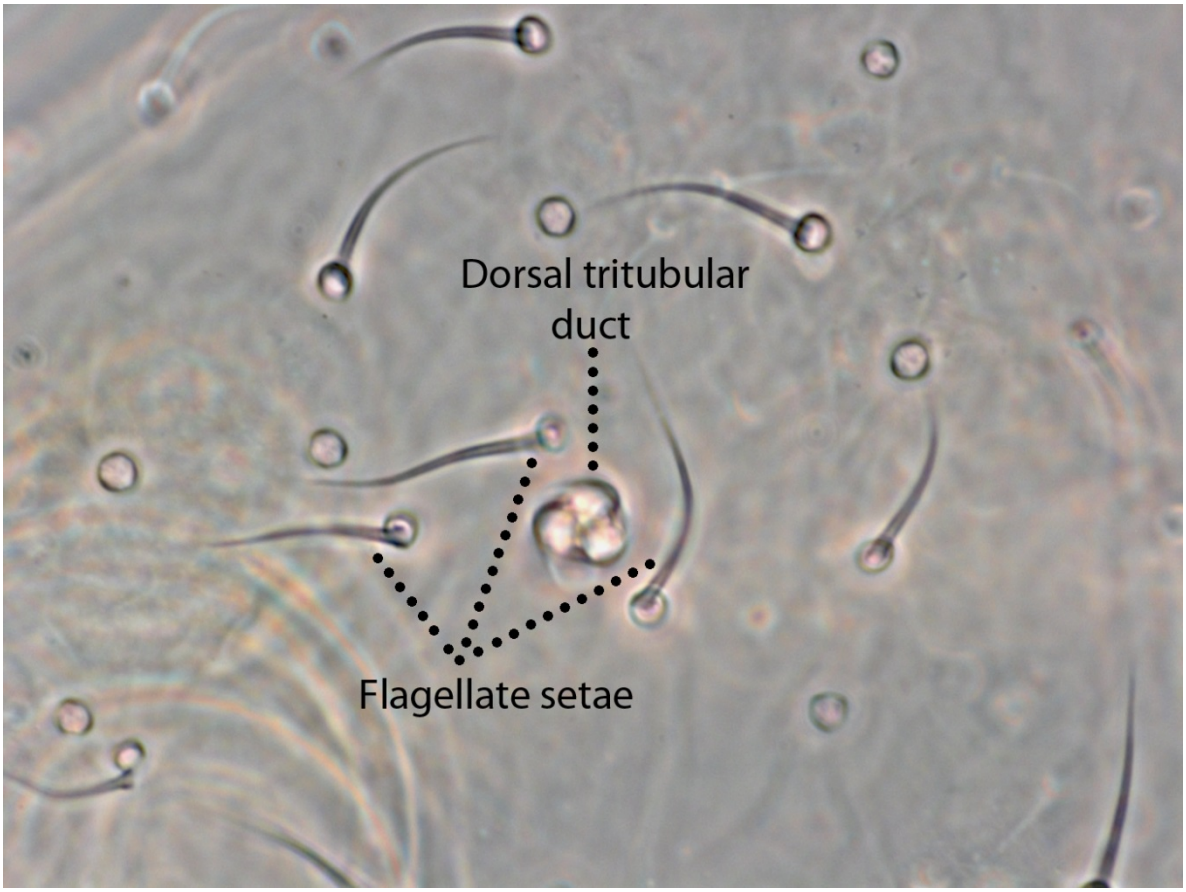

Figure 1. Dorsal tritubular duct with associated flagellate setae in *Rhizoecus cyperalis* (Hambleton) (Photo by A. Ramos).

Rhizoecus nemoralis (Hambleton 1946) and *R. pauciporus* Hambleton, 1976, are close to *R. cyperalis*, but they differ from the latter species by the absence of flagellate setae associated with dorsal tritubular ducts. The falcate sensory pores in the last antennal segment are filiform in *R. cyperalis*, whereas in *R. nemoralis* and *R. pauciporus* they are clavate or slightly clavate (Hambleton 1946, 1976). In the Neotropical Region, 38 species in the genus *Rhizoecus* have been recorded, out of which 10 are known to occur in Colombia (Ben-Dov

et al. 2013). With the discovery of this mealybug, the total number of *Rhizoecus* in Colombia is increased to 11 species (Table 1).

Table 1. Mealybug species of the genus *Rhizoecus* Künckel d'Herculais, 1878 (Hemiptera: Rhizoecidae) reported from Colombia.

Species	References
Rhizoecus americanus (Hambleton)	Hambleton 1946; Williams & Granara de Willink 1992; Ben-Dov 1994; Kondo 2001
Rhizoecus arabicus Hambleton	Hambleton 1976; Hamon 1982; Williams & Granara de Willink 1992; Ben-Dov 1994; Kondo 2001
Rhizoecus cacticans (Hambleton)	Williams & Granara de Willink 1992; Ben-Dov 1994; Kondo 2001
Rhizoecus caladii (Green)	Williams & Granara de Willink 1992; Ben-Dov 1994; Kondo 2002
Rhizoecus coffeae Laing	Gonzáles-Mendoza 1956; Ben-Dov 1994
Rhizoecus compotor Williams & Granara de Willink	Williams & Granara de Willink 1992; Ben-Dov 1994; Kondo 2002
Rhizoecus cyperalis (Hambleton)	Present study
Rhizoecus latus (Hambleton)	Williams & Granara de Willink 1992; Ben-Dov 1994; Kondo 2001
Rhizoecus mayanus (Hambleton)	Kondo *et al.* 2008
Rhizoecus setosus (Hambleton)	Hambleton 1977; Williams & Granara de Willink 1992; Ben-Dov 1994; Kondo 2001; Kondo *et al.* 2008
Rhizoecus variabilis Hambleton	Hambleton 1978; Williams & Granara de Willink 1992; Ben-Dov 1994; Kondo 2001; Kondo *et al.* 2008

REPOSITORY: UNAB: Museo Entomológico Facultad de Agronomía, Universidad Nacional de Colombia, Sede Bogotá, Bogotá, Cundinamarca, Colombia. **Material Studied:** *Rhizoecus cyperalis* (Hambleton 1946). **Colombia**: Cundinamarca, Cajicá. Universidad Militar Nueva Granada. 2565 m a.s.l., 4°56′29.65″N, 74°0′54.47″W, coll. M. Cortez, *ex* Roots of *Thimus vulgaris* (Lamiaceae), 3 specimens (UNAB).

Literature cited

Ben-Dov, Y. 1994. A systematic catalogue of the mealybugs of the world (Insecta: Homoptera: Coccoidea: Pseudococcidae and Putoidae) with data on geographical distribution, host plants, biology and economic importance. Intercept Limited, Andover, UK. Pp. 686.

Ben-Dov, Y., Miller, D.R. & Gibson, G.A.P. 2013. ScaleNet: a database of the scale insects (Hemiptera; Coccoidea) of the world. http://www.sel.barc.usda.gov/scalenet/htm accessed october 2013.

Gonzáles-Mendoza, R. 1956. Plagas del cafeto en Colombia. Sanidad Vegetal, 12: 123-127.

Hambleton, E.J. 1946. Studies of hypogeic mealybugs. Revista de Entomologia. Rio de Janeiro, 17: 1-77.

Hambleton, E.J. 1976. A revision of the new world mealybugs of the genus *Rhizoecus* (Homoptera: Pseudococcidae). United States Department of Agriculture Technical Bulletin, 1522: 1-88.

Hambleton, E.J. 1977. Notes on the species of *Neorhizoecus* Hambleton, a synonym of *Rhizoecus* Künckel D'Herculais (Homoptera: Pseudococcidae). Proceedings of the Entomological Society of Washington, 79: 367-376.

Hambleton, E.J. 1978. Three new Neotropical *Rhizoecus* (Homoptera: Pseudococcidae). Proceedings of the Entomological Society of Washington, 80: 156-163.

Hamon, A.B. 1982. *Rhizoecus arabicus* Hambleton, a root mealybug in Florida (Homoptera: Coccoidea: Pseudococcidae). Entomology Circular, Florida Department of Agriculture and Consummer Sevices Division of Plant Industry, No. 238: 1-2.

Hodgson, E.J. 2012. Comparison of the morphology of the adult males of the Rhizoecine, phenacoccine and pseudococcine mealybugs (Hemiptera: Sternorrhyncha: Coccoidea), with the recognition of the family Rhizoecidae Williams. Zootaxa, 3291: 1-79.

Kondo, T. 2001. The Scale Insects of Colombia (Hemiptera: Coccoidea). Biota Colombiana, 2(1): 31-48.

Kondo, T., Ramos-Portilla, A.A. & Vergara-Navarro, E.V. 2008. Updated list of mealybugs and putoids from Colombia (Hemiptera: Pseudococcidae and Putoidae). Boletín del Museo de Entomología de la Universidad del Valle, 9(1): 29-53.

Kozár, F. & Konczné Benedicty, Z. 2007. Rhizoecinae of the world. Plant Protection Institute, Hungarian Academy of Sciences, Budapest, Hungary. Pp. 617.

Williams, D.J. & Granara de Willink, M.C. 1992. Mealybugs of Central and South America. CAB International, London, England, UK. Pp. 635.

Recibido octubre 8, 2013, publicado diciembre, 2013

View publication stats