



Article

urn:lsid:zoobank.org:pub:3BE50775-91E4-47F0-9D88-AAEA3F5CF374

Taxonomy of *Kermes greeni* Bodenheimer (Hemiptera: Coccoidea: Kermesidae) with a new synonymy

MALKIE SPODEK^{1,2}, YAIR BEN-DOV¹ & ALEX PROTASOV¹

¹Agricultural Research Organization, The Volcani Center, Department of Entomology, P.O. Box 6, Bet Dagan 50250, Israel.
Email: yairbd@netvision.net.il, protasov@volcani.agri.gov.il

²The Hebrew University of Jerusalem, Robert H. Smith Faculty of Agriculture, Food and Environment, Department of Plant Protection, Israel. Email: malkiespodek@gmail.com

Abstract

The first-instar nymph and adult female of *Kermes greeni* Bodenheimer, 1931 are redescribed and a lectotype is designated. *Kermes palestiniensis* Balachowsky, 1953 is synonymized with *K. greeni*. This synonymy is based on a study of the type material of *K. greeni* and *K. palestiniensis*, as well as on fresh, topotypic material collected from *Quercus calliprinos* Webb in Israel.

Key words: scale insect, evergreen oak, *Quercus coccifera*

Introduction

The scale insect family Kermesidae (Hemiptera: Coccoidea) is distributed in the Nearctic, Oriental and Palaearctic regions of the world. The family contains about one hundred valid species in ten genera. The majority of species of the family are considered to be restricted to *Quercus* species (Fagaceae) (Ben-Dov *et al.* 2012). Individuals develop mainly in bark crevices and on small twigs and branches (Sternlicht 1969; Bullington & Kosztarab 1985; Hu 1986; Podsiadlo 2005). Most Kermesidae are not known to cause any visible injury to their host trees. There are however some reports of branch dieback, flagging, reduced growth rates and occasionally tree death (Kozár 1974; Hamon 1977; Solomon *et al.* 1980; Viggiani 1991; Pellizzari *et al.* 2012). On the other hand, some species of *Kermes* are known for their importance as a source of crimson dye (Amar 2005; Cardon 2007).

Seven Kermesidae species belonging to the genera *Kermes* Boitard and *Nidularia* Targioni Tozzetti have been described or recorded in Israel (listed chronologically): *Kermes greeni* Bodenheimer, 1931: 246; *Kermes nahalali* Bodenheimer, 1931: 246; *Nidularia balachowskii* Bodenheimer 1944: 92; *Kermes echinatus* Balachowsky, 1953: 183; *Kermes spatulatus* Balachowsky, 1953: 184; *Kermes palestiniensis* Balachowsky, 1953: 186 and *Kermes bytinskii* Sternlicht, 1969: 253.

In addition, *Nidularia pulvinata* (Planchon) was recorded as present in Israel by Bodenheimer (1935). However, we have not recovered this species in Israel and no material has been found in the ICVI, BMNH and MNHN collections. *Kermes biblicus* (Bodenheimer 1926) was originally described from Lebanon. Bytinski-Salz & Sternlicht (1967) and Sternlicht (1969) supposed that *K. palestiniensis* was a synonym of *K. biblicus*. However, no material of *K. biblicus* was available during this study and we have not collected this species from Israel.

Bodenheimer's (1931) descriptions of *K. greeni* and *K. nahalali* were based on post-reproductive females, in which the cuticle of the post-reproductive female adult is highly sclerotized and convex and some of the morphological characters of taxonomic significance are not visible, making it difficult to establish its taxonomic identity. Three additional species of *Kermes* (*K. echinatus*, *K. palestiniensis* and *K. spatulatus*) were described from Israel by Balachowsky (1953) based entirely on the first-instar nymphs because he was unable to relate these nymphs to the *Kermes* post-reproductive adults described by Bodenheimer (1931).