

Pauesia silana Tremblay, 1969 a parasitoid of *Cinara*-aphids on Conifers in Malta (Hymenoptera: Braconidae: Aphidiinae)

David MIFSUD¹ & Petr STARÝ²

ABSTRACT. *Pauesia silana* is recorded for the first time from Malta and the Lefkada and Meganissi islands in Greece. From Malta, the species was reared from *Cinara palaestinensis* on *Pinus halepensis* from material collected from Buskett. From the Greek islands, the species was collected on *Cinara* sp. on the same mentioned host-plant. The new record contributes to the information on its distribution, hosts and plant associations in the Mediterranean area.

KEYWORDS. Aphidiinae, *Cinara palaestinensis*, *Pinus halepensis*, *Pauesia silana*, Lefkada, Meganissi, Malta.

INTRODUCTION

In recent years, there have been many studies on aphid parasitoids especially in south-eastern Europe and Asia Minor (e.g. KAVALLIERATOS *et al.*, 2001, 2004; EL-MALI *et al.*, 2004). Unfortunately, this is not the case for Malta where very few records of aphid parasitoids exist in the entomological literature. Earlier literature on this subject in Malta was summarised by MIFSUD (1997) and hereunder data is provided on these earlier records with some additional information and comments.

FARRUGIA (1995) reared a total of five species of aphidiine braconids from aphids. *Lysiphlebus fabarum* (Marshall, 1896) was reared from *Myzus persicae* (Sulzer, 1776). This record needs validation as this parasitoid is not normally associated with the mentioned aphid. It could have been either a mixture of another aphid species from where the parasitoid emerged or a misidentification of the parasitoid itself. However, the presence of *L. fabarum* in Malta was recently confirmed through rearing of this parasitoid from *Aphis craccivora* Koch, 1854 [Material examined: MALTA: Tà Qali (aphids collected on 29.vi.2009 and parasitoids emerged on 2-4.vii.2009, 36 ♀♀ from *Aphis craccivora* on *Cerantonis siliqua*, leg. D. Mifsud]. The record of *Binodoxys angelicae* (Haliday, 1833) from *Lipaphis pseudobrassicae* (Davis, 1914) (= *L. erysimi*) is also rather improbable, and most likely it reflects a misidentification of the parasitoid itself. The records of *Praon volucre* (Haliday, 1833) and *Diaeretiella rapae* (M'Intosh, 1855) from *Brevicoryne brassicae* (Linnaeus, 1758) are most likely correct. Similarly, the records of *Aphidius matricariae* Haliday, 1834, *Praon volucre* and *Diaeretiella rapae* from *Myzus persicae* are also most likely correct. *Aphidius colemani* Viereck, 1912 was introduced in the Maltese Islands mainly for controlling greenhouse aphids where effective control was reported (MIFSUD, 1997) and its outdoor occurrence and parasitisation on aphid species in the open may be predicted.

¹Department of Biology, Junior College, University of Malta, Msida, Malta. E-mail: david.a.mifsud@um.edu.mt

²Institute of Entomology, Biology Centre, Academy of Sciences of the Czech Republic, Branisovska 31, 37005 Česká Budejovice, Czech Republic. E-mail: stary@entu.cas.cz

In this present work we provide some data on a further species of aphid parasitoid associated with conifer-aphids.

MATERIAL AND METHODS

For the present study, research work was mainly carried out on conifer trees which are rather limited in distribution especially in Malta. The suspected aphid sample hosting the parasitoid was taken from a wooded area known as Buskett where much *Pinus halepensis* and other indigenous trees are present. Aphids were sampled as live colonies on conifer branches from where they were gently cut with scissors and transferred into a plastic jar suitable for rearing aphid parasitoids. They were kept under room temperature until parasitoid emergence. The parasitoid material is deposited in the private collection of the authors.

RESULTS

Pauesia silana Tremblay, 1969

Material examined: MALTA: Buskett, 17.vi.2009, 2 ♂♂ & 2 ♀♀ emerged between the 19-21.vi.2009 from *Cinara palaestinensis* Hille Ris Lambers on *Pinus halepensis*, leg. D. Mifsud. GREECE: Lefkada Island, Vassiliki, 8.vi.2009, 2 ♂♂ & 1 ♀, from *Cinara* sp. on *P. halepensis*, leg. P. Starý; Meganissi Island, Spatophori, 2.vi.2009, from *Cinara* sp. on *Pinus halepensis*, 1 ♀, leg. P. Starý. The mummified aphids were observed to be mounted on small branches of the host-plant.

Short description: The original description of *P. silana* (TREMBLAY, 1969) is well-documented. The species is also keyed out by KAVALLIERATOS *et al.* (2001) and STARÝ (1976). It is easily distinguished because of the 18 - 19 segmented antennae and propodeum bears merely the transverse carinae (females).

Distribution, host aphid and plant associations: *P. silana* seems to be well distributed in coastal and mainland areas of the Mediterranean Region. Previous records of *P. silana* are included here under with data on host aphid, plant association and distribution:

Cinara acutirostris Hille Ris Lambers, 1956:

TREMBLAY, 1969: on *Pinus nigra calabrica* in Calabria-Italy;

TREMBLAY, 1970: in Sicily-Italy;

STARÝ, 1976 (review).

Cinara maghrebica Mimeur, 1934:

STARÝ *et al.*, 1973: on *Pinus halepensis* in southern France;

STARÝ, 1976 (review);

MICHELENA SAVAL & GONZALEZ FUNES, 1988: on *Pinus halepensis* in Valencia-Spain.

Cinara palaestinensis Hille Ris Lambers, 1948:

KAVALLIERATOS *et al.*, 2001, 2004: on *Pinus pinea* in Attica-Greece.

Cinara pini (Linnaeus, 1758):

STARÝ, 1976: in Italy.

DISCUSSION

Until relatively recent, aphid studies in Malta were almost inexistent. MIFSUD *et al.* (2009) provided a critical review of aphid literature dealing with Maltese records with a total of 50 species included therein. However, current studies indicate that the aphid fauna of the Maltese Islands is relatively rich reflecting the large number of different plants which inhabit this archipelago. Research on aphids and their parasitoids in Malta is contributing to faunal conservation efforts, diversity studies, as well as island's faunal peculiarities. Aphid parasitoids may be expected to be reduced in species richness, but on the other hand, this reduction may manifest itself in new interspecific interactions in the parasitoid guilds on the individual aphid species. The same pertains to the presumed invasive occurrence of some parasitoid species such as *Lysiphlebus testaceipes* (Cresson, 1880) whose distribution range have expanded in most of the Mediterranean Region (KAVALLIERATOS *et al.*, 2001, 2004; PONS *et al.*, 2004; STARÝ *et al.*, 2004). It is expected that as more aphid studies are carried out in Malta, more new records of aphid parasitoids are found and hopefully recorded.

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