

**New record species for the Italian fauna:
Cirrospilus talitzkii (Hymenoptera Eulophidae), a new parasitoid of
Cameraria ohridella (Lepidoptera Gracillariidae)
(Preliminary note)**

Paolo RADEGHIERI, Fabrizio SANTI, Stefano MAINI

Dipartimento di Scienze e Tecnologie Agroambientali - Entomologia, Università di Bologna, Italy

Abstract

Cirrospilus talitzkii Bouček, new record species for the Italian fauna, was reared for the first time on *Cameraria ohridella* Desckha et Dimić infesting horse chestnut leaves in Bologna. A few specimens (11 total) emerged from mined leaves. Preliminary observations indicate that *C. talitzkii* is a primary parasitoid.

Key words: *Cirrospilus talitzkii*, parasitoid, *Cameraria ohridella*, *Aesculus hippocastanum*, new record species, Italy.

During researches on *Cameraria ohridella* Desckha et Dimić, the horse chestnut leafminer that recently is spreading in Europe, a new parasitoid not recorded for our Country was found.

To collect the parasitoids of *C. ohridella*, a species present in Italy since 1994, (Hellrigl, 2001) and in the Emilia-Romagna region since 1997 (Maini and Santi, 1998), samples of horse chestnut leafminer pupae overwintering in leaves were kept in wood cages. An outdoor shelter was set up in 2001 and cages with holes connected to plastic containers for parasitoid collection were examined next spring. Leaves were accurately cleaned before the storage to avoid presence of other insects. During summer 2002, the same method was used for samples of infested leaves that contained mature larvae and pupae of the host. Of the several species of parasitoids reared, many are well known (Grabenweger and Lethmayer, 1999; Hellrigl, 2001), but a new record of Eulophidae species emerged. The parasitoid belongs to the genus *Cirrospilus* Westwood, including 13 species in Italy, as reported in the checklist of Pagliano and Navone (1995). Among these *Cirrospilus talitzkii* Bouček, is not listed, and it thus constitutes a new record. The parasitoid was classified and named in 1961 ex *Phyllonorycter corylifoliella* (Hübner) by Bouček. Hosts of *C. talitzkii* were the leafminers *P. corylifoliella* in Moldavia and Ukraine (Bouček and Askew, 1968). Later *C. talitzkii* was recorded as a parasitoid of *P. malella* (Gerasimov) in Kazakhstan (Petrova, 1970). Yefremova (1995) reports that *C. talitzkii*, named *Zagrammosoma talitzkii*, can parasitize other leafminer hosts. The Lepidoptera *Leucoptera malifoliella* (O.G. Costa), *Bucculatrix crataegi* (Zeller), *Parornix persicella* Danilevsky, *Holocacista rivillei* (Stainton), *P. sorbi* (Frey), *P. spinicolella* (Zeller) = *cereasicolella* (Herrich-Schäffer), *P. connexella* (Zeller), *P. malella*, *Lithocolletis salciphaga* Kuznetsov and also the Diptera Agromyzidae *Liriomyza pseudopygmina* Hering are listed (Yefremova, 1995). Recently Kutinkova and Andreev (2001), for the first time in Bulgaria, found *C. talitzkii* parasitizing *P. blancardella* and *P. corylifoliella*

mining apple leaves. However *C. talitzkii* has never been described as a primary parasitoid of *C. ohridella*.

In Italy, *Cirrospilus pictus* (Nees) was the only species of this genus emerging from *C. ohridella* as a primary or secondary parasitoid. *Cirrospilus pictus* was observed in the Veneto region (Marchesini *et al.*, 2002) and in South Tyrol (Hellrigl, 2001). Grabenweger and Lethmayer (1999) identified in Austria ex *C. ohridella* three species of *Cirrospilus*: *C. pictus*, *C. vittatus* Walker and *C. viticola* Rond.

We had the opportunity to video record one case of parasitization behaviour of *C. talitzkii* on a horse chestnut leaf infested by *C. ohridella*. The female, after walking and drumming with the antennae on the mine, stung with the ovipositor the *C. ohridella* larva. The reaction of the host larva was typical wriggling movements, as described for other leafminer host - parasitoid associations (Bacher *et al.*, 1996, 1997).

Further investigations on biology and ethology of *C. talitzkii* will be carried out, to verify if *C. talitzkii* actually is a primary parasitoid only and if it attacks other leafminers in the same localities where it was found in horse chestnut trees. The incidence on *C. ohridella* seems to be very poor and we will check if parasitization level can increase in the area where *C. talitzkii* was found for the first time. A total of 11 specimens of *C. talitzkii* were reared. The emergence data was May 25, 2002. Adults (5 females and 4 males) were obtained from *C. ohridella* overwintering pupae collected in Bologna (30 m a.s.l.). Furthermore, in the same locality, one male and one female emerged on August 28, 2002, from collected larvae of third generation of *C. ohridella* mining horse chestnut leaves. These specimens were deposited at the insect collection of the DiSTA - Entomologia, University of Bologna.

Acknowledgments

We thank Dr Gisheler Grabenweger of Landesgartenbauvereinigung Niederösterreich, Vienna - Austria for

the determination of the species, and Prof. Pasquale Trematerra, Molise University for microlepidopteran nomenclature.

References

- BACHER S., CASAS J., DORN S., 1996.- Parasitoid vibrations as potential releasing stimulus of evasive behaviour in a leaf-miner.- *Physiological entomology*, 21: 33-43.
- BACHER S., CASAS J., WACKERS F., DORN S., 1997.- Substrate vibrations elicit defensive behaviour in leafminer pupae.- *Journal Insect physiology*, 43: 10, 945-952.
- BOUČEK Z., 1965.- A review of the Chalcidoid fauna of the Moldavian S.S.R. with descriptions of new species (Hymenoptera).- *Acta Faunistica Entomologica Musei Nationalis Pragae*, 11: 5-38
- BOUČEK Z., ASKEW R. R., 1968.- Palearctic Eulophidae (excl. Tetrastichinae).- *Index of Entomophagous Insects, LeFrancois, Paris*. 254 pp.
- GRABENWEGER G., LETHMAYER C., 1999.- Occurrence and phenology of parasitic Chalcidoidea on the horse chestnut leafminer, *Cameraria ohridella* Deschka & Dimić (Lep., Gracillariidae).- *J. Appl. Ent.*, 123: 257-260.
- HELLRIGL K., 2001.- Neue Erkenntnisse und Untersuchungen über die Roßkastanien-Miniermotte.- *Gredleriana*, 1: 9-81
- KUTINKOVA H., ANDREEV R., 2001.- Entomophagous of the apple leafminers, *Phyllonorictor (Lithocolletis) blancardella* F. and *Phyllonorictor (Lithocolletis) corylifoliella* Hb. Lepidoptera Gracillariidae.- In: *Proc. of 9th Int. Conference of Horticulture. Sept. 3-6 2001, Lednice, Czech Republic*, 3: 659-664.
- MARCHESINI E, PASINI M., GALBERO G., 2002.- Parassitoidi della minatrice fogliare degli ippocastani.- *L'informatore Agrario, Verona*, 27: 75-77
- PAGLIANO G., NAVONE P., 1995.- Hymenoptera Chalcidoidea, fascicolo 97. In: MINNELLI A., RUFFO S., LA POSTA S. (eds.), *Checklist delle specie della fauna italiana*, 92-98, Calderini, Bologna: 40 pp.
- PETROVA V.K., 1970.- Two species of moths (Lepidoptera, Lithocolletidae, Bucculatricidae) that mine the leaves of apple trees in the Alma-Ata fruit-growing zone.- *Entomologicheskoe Obozrenie*, 49: 3, 672-677
- YEFEMEROVA Z. A., 1995.- Notes on some Palearctic and Afrotropical species of the genus *Zagrammosoma* (Hymenoptera, Eulophidae).- *Zoologicheskij Zhurnal*, 74 (10): 46-54.

Authors' addresses: Paolo RADEGHIERI (corresponding author, e-mail: pradeghieri@entom.agrsci.unibo.it), Fabrizio SANTI, Stefano MAINI, DiSTA - Entomologia, Università di Bologna, via Fanin 42, 40127 Bologna, Italy.

Received October 10, 2002. Accepted December 18, 2002