

The first record of *Garsaultia gigantonympha* (Acari, Acaridae) on *Temnothorax crassispinus* (Hymenoptera: Formicidae)

První nález *Garsaultia gigantonympha* (Acari, Acaridae) u *Temnothorax crassispinus* (Hymenoptera: Formicidae)

KLÁRA TICHÁ

Abstract: The occurrence of the hypopus of acarid mite *Garsaultia gigantonympha* (Vitzthum, 1920) on the body of the myrmicine ant *Temnothorax crassispinus* (Karavajev, 1926) was recorded for the first time. Owing to the scarcity of these findings (17 colonies in 2 localities from more than 500 colonies originating from Czech, Moravian and Slovak populations), it is likely that this phenomenon is quite rare and local in distribution.

Key words: *Temnothorax*, *Garsaultia*, mite, myrmecophily.

Abstrakt: V práci je poprvé popsán výskyt roztoče *Garsaultia gigantonympha* (Vitzthum, 1920) na těle myrmicinního mravence *Temnothorax crassispinus* (Karavajev, 1926). Vzhledem k malému počtu nálezů (u 17 kolonií na 2 lokalitách z více než 500 prozkoumaných kolonií pocházejících z českých, moravských a slovenských populací) se pravděpodobně jedná o vzácný lokální jev.

INTRODUCTION

The bodies of ants provide special microhabitats for a variety of ectosymbionts. Myrmecophilous mites are the foremost representatives among ectosymbiont species in terms of sheer numbers of individuals (Holldöbler et Wilson 1990). Ectosymbiont mites have been studied mainly in the formicine genera *Lasius* Fabricius, 1804 and *Formica* Linnaeus, 1758 (see e. g. Janet 1897 a, b; Wasmann 1902; Wheeler 1910, Samšiňák 1960), and in *Eciton* Latreille, 1804 army ants (see e. g. Rettenmeyer 1960). In the myrmicine ants, they have been investigated in genera *Aphaenogaster* Mayr, 1853, *Crematogaster* Lund, 1831 and *Tetramorium* Mayr, 1855 (see Hunter 1964, Kistner 1982). There are scarce data for the genus *Temnothorax* Mayr, 1861, the ant group which is currently the centre of interest of many myrmecologists.

The present paper reports the first finding of a hypopus of the acarid mite *Garsaultia gigantonympha* in the myrmicine ant *Temnothorax crassispinus*.

MATERIAL AND METHODS

Temnothorax crassispinus is a small myrmicine ant (workers about 2 mm, queen 3–4 mm). Its colonies regularly contain several dozen individuals, which establish their nests in small cavities, such as pieces of rotten wood, acorns and other material lying on the ground. This species inhabits mainly deciduous, mixed and pine woods of the temperate zone. *Garsaultia gigantonympha* is an acarid mite known only from a deutonymphal stage (O'Connor 2002; Türk et Türk 1957). It has been found on the genus *Camponotus* Mayr, 1861 (cf. Samšiňák, pers. comm.) and *Myrmica rubra* (Linnaeus, 1758) (cf. Türk et Türk 1957). Information about this mite is scarce.

Date of collection: 7. 6. 1991, 4. 6. and 2. 7. 2002, 11. 9. 2005 (lgt. Tichá, det. Samšiňák, coll. Muzeum Vysočiny Jihlava)

Localities: Czech Republic, Praha – Motol (5952), Hrotovice (6862)

RESULTS AND DISCUSSION

Garsaultia gigantonympha was found in 17 colonies of *Temnothorax crassispinus* (7 colonies collected on 7. 6. 1991, Motol; 3 colonies collected on 4. 6. 2002, Motol; 6 colonies collected on 2. 6. 2002, Motol and 1 colony collected on 11. 9. 2005, Hrotovice). From 1 to 20 hypopuses of this mite were located on the thorax and/or abdomen of ants. The mites occurred mostly in queens, but were also found in workers. Other stages have not been found. The hypopuses were immobile on the ant body, but they were able to walk after removal. They were notable for their resistance against low temperature. Four individuals were still alive after 20 minutes exposition to -18°C .

Occurrence of *Garsaultia gigantonympha* on *Temnothorax crassispinus* appears to be rare and local. More than 550 colonies of *T. crassispinus* have been explored since 1988, originating from the Czech Republic and Slovakia (localities Praha, Mělník, Mohelno, Hrotovice, Znojmo and Piešťany) (Tichá 1992, 2002; Tichá unpubl.; Tichá et Štys 2002). *Garsaultia gigantonympha* has been found only in the cases described above.

The discovery of unknown stages of *Garsaultia gigantonympha* and the exploration of their biology is an important task for future research.

ACKNOWLEDGMENTS

I am obliged to K. Samšiňák (Sobotka, CZ) for determination of the mite and a lot of valuable advice and information, and B. O'Connor (Ann Arbor, USA), F. Dusbábek (České Budějovice, CZ), K. Pusch (Regensburg, Germany), J. Smrž (Praha, CZ) and P. Štys (Praha, CZ) for valuable information.

REFERENCES

HÖLLDOBLER B. et WILLSON E. O. (1990): The Ants. – Springer-Verlag, Berlin, 732 pp.

- HUNTER P. E. (1964): Three new species of *Laelaspis* from North America (Acarina, Laelaptidae). – *Journal of the Kansas Entomological Society*, 37, 4: 293–301.
- JANET C. (1897 a): Rappports des animaux myrmécophiles avec les fourmis. H. Ducourtieux, limoges. 98 pp.
- JANET C. (1897 b): Sur le rappports de l'Antennophorus uhlmani Haller avec le *Lasius mixtus* Nyl. – *Comptes Rendus de l'Académie des Sciences, Paris*, 124, 11: 583–585.
- KISTNER D. H. (1982): The social insects' bestiary. – In: H. R. HERMANN [ed.]: *Social Insects 3*. – Academic Press, New York.: 1–244.
- O'CONNOR B. (2001): Checklist of Genera in the Family Acaridae. <http://insects.ummz.lsa.umich.edu/PEET/checklist.html>.
- RETTENMAYER C. W. (1960): Behavior, abundance and host specificity of mites found on Neotropical army ants (Acarina; Formicidae: Dorylinae). – *Proceedings of the Eleventh International Congress of Entomology, Vienna, 1960*, 1: 610–612.
- SAMŠIŇÁK K. (1960): Ueber einige myrmekophile Milben aus der Familie Acaridae. – *Časopis České Společnosti Entomologické*, 57, 2: 185–192.
- SEIFERT B. ((1995): Two new Central European subspecies of *Leptothorax nylanderi* (Förster, 1850) and *Leptothorax sordidulus* Müller, 1923 (Hymenoptera, Formicidae). – *Abhandlungen und Berichte des Naturkundemuseum Görlitz*, 68, 7: 1–18.
- SEIFERT B. (1996): Ameisen, Beobachten. – Bestimmen. Natur Buch Verlag, 352 pp.
- TÜRK E. et TÜRK F. (1957): Systematik un Ökologie der Tyroglyphiden Mitteleuropas. – In: STAMMER H. J. [ed.]: *Beitrage zur Systematik und Ökologie Mitteleuropaischer Acarina. Band I, Tyroglyphidae und Tarsonemini. Teil 1*. – Akademische Verlagsges., Geest & Portig K. G., Leipzig: 3–231.
- TICHÁ K. (1992): [Monogyny of *Leptothorax nylanderi* (Hymenoptera, Formicidae) in sample of population from Czechoslovakia]. – Unpubl. Master Thesis. Praha, Charles University, 194 pp (in Czech).
- TICHÁ K. (2002): Nestmate discrimination in *Leptothorax crassispinus* (Hymenoptera, Formicidae). – *Acta Universitatis Carolinae Biologica*, 46, 325–336.
- TICHÁ K. et ŠTYS P. (2002): Monogyny in *Leptothorax slavonicus* (Hymenoptera: Formicidae). – *Acta Societatis Zoologicae Bohemicae*, 66: 151–160.
- WASMANN E. (1902): Zur Kenntnis der myrmecophilen *Antennophorus* und anderer auf Ameisen und Termiten reitender Acarinen. – *Zoologischer Anzeiger*, 25: 66–76.
- WHEELER W. M. (1910): Two new myrmecophilous mites of the genus *Antennophorus*. – *Psyche*, 17, 1: 1–6.