

## SOME MITE (ACARI) SPECIES FROM MASS-REARING LABORATORIES OF COMMERCIAL MUSHROOMS AND BENEFICIAL ARTHROPODS IN LATVIA

VALENTÍNA PETROVA<sup>1</sup>, INETA SALMANE

<sup>1</sup> Institute of Biology, University of Latvia, Miera iela 3, Salaspils, LV-2169, Latvia. Fax: +(371 9) 345412. E-mail: vpetrova@hotmail.com

Petrova V., Salmene I.: Some mite (Acari) species from mass-rearing laboratories of commercial mushrooms and beneficial arthropods in Latvia. In Gajdoš P., Pekár S. (eds): Proceedings of the 18th European Colloquium of Arachnology, Stará Lesná, 1999. Ekológia (Bratislava), Vol. 19, Supplement 3/2000, p. 211-212.

This investigation was made as a case study of Gamasina mites in mass-rearing laboratories. Twenty-five samples from the various substrates (soils, mushrooms and wheat bran) were received during 1998-1999 and five mite species from this material were collected. Four of the recorded species belonged to the gamasid mites and one to the cheyletid mites. Four of them – the cheyletid mite *Cheletomorpha lepidopterorum* and the gamasines *Blattisocius tarsalis*, *Proctolaelaps cyllodi* and *Dendrolaelaps fallax*, were recorded as predators of some arthropods.

*Blattisocius tarsalis* (BERLESE, 1918) (Parasitiformes, Aceosejidae) is a common native predator of storage product pests (BREGETOVA, 1977; KARG, 1993). This species has been found in barley grain samples together with the Angoumois grain moth, *Sitotroga cerealella*, and the parasitoid wasp *Trichogramma* sp. in the trichogrammatid mass-rearing laboratory in Latvia in 1998, 1999. It was noted that *B. tarsalis* can play a deleterious role in the process of mass rearing of trichogrammatids by decreasing the quality and efficacy of this parasitoid (SALMANE et al., 1998).

*Paragarmania dentriticus* (BERLESE, 1918) (Parasitiformes, Aceosejidae) was found by KARG (1993) in a *Tyrophagus* culture. This mite has been found in Latvia in soil samples from rearing rooms for the aphid parasitoid, *Aphidius colemanii*, and was recorded for the first time. These mites were collected from the soil surface in containers of plants where the parasitoid and its aphid host were reared. Predation by *P. dentriticus* on the other arthropods was not observed.

The species *Proctolaelaps cyllodi* SAMŠINAK, 1960 (Parasitiformes, Aceosejidae) was mentioned by BREGETOVA (1977) as being found on the beetles *Cyllodes ater* and on beech trees. This species was collected in cropping rooms for the mushroom *Pleurotus ostreatus* and is new for the fauna of Latvia. A high population density of *P. cyllodi* was recorded; 20-50 specimens per sample. Predation by *P. cyllodi* on the acarid mite, *Tyrophagus putrescentiae*, inhabiting mushrooms was recorded.

*Dendrolaelaps fallax* (LEITNER, 1949) (Parasitiformes, Rhodocaridae) in general inhabits manure and soil and has been found under trees and on field mushrooms (SHCHERBAK, 1980), but in Latvia was recorded for the first time. The specimens of *D. fallax* were found in cultivation rooms of the laboratory for mass-rearing beneficial arthropods. The phytoseiid mite, *Neoseiulus cucumeris*, and its laboratory prey (acarid mites *Acarus farris* and *Tyrophagus putrescentiae*) are the preferred food for the predatory mite *D. fallax*. This mite can inhabit, predate and multiply in wheat bran substrate which contains the above-mentioned phytoseiid and acarid mites.

*Cheletomorpha lepidopterorum* (SCHAW, 1794) (Acariformes, Cheyletidae) is a free living mite, which preys on some other small arthropods, preferring acarid mites as food. *C. lepidopterorum* was found on apple trees and strawberry leaves in Latvia and Lithuania (KUZNETSOV, PETROV, 1984). This predator was found first in the mass-rearing laboratory for beneficial arthropods in 1989 (GORGOL, PETROVA, 1989) and then a second time in 1998 by us. We observed *C. lepidopterorum* to prey on two predatory Gamasina mites, *N. barkeri*, *N. cucumeris*, and on an acarid mite, *T. putrescentiae*. *C. lepidopterorum* found prey and multiplied only on the surface of the wheat bran substrate, and on the floor and walls of the cultivation room, but never inside the wheat bran substrate (unlike *D. fallax*).

Our investigation has shown that, among the species referred to above, only the cheyletid mite *C. lepidopterorum* is frequently recorded as an occasional species outside, as well as in enclosed buildings. The gamasine mites *B. tarsalis*, *P. dentriticus*, *P. cyllodi* and *D. fallax* are only inhabitants of enclosed buildings in some places in Latvia. They may multiply and cause serious problems, especially in mass-rearing laboratories for beneficial arthropods, if a scrupulously clean regime of mass-rearing of the insects, mites and mushrooms is not maintained.

## References

- BREGETOVA, N.G., 1977: Identification key of soil inhabiting mites. Mesostigmata. Nauka, Leningrad, 717 pp. (In Russian)
- GORGOL, V.T., Petrova, V.I., 1989: New data about predation of mite *Cheletomorpha lepidopterorum*. Proc. Latvian Acad. Sci., 8, 505, p. 105-108.
- KARG, W., 1993: Acari (Acarina), Milben Parasitiformes (Anactinochaeta) Cohors Gamasina Leach. Raubmilben. 2., überarbeitete Auflage. Gustav Fischer Verlag, Jena, 524 pp.
- KUZNETSOV, N.N., Petrov, V.M., 1984: Predatory mites of Baltic States. Zinatne, Riga, 143 pp. (In Russian)
- SALMANE, I., PETROVA, V., TENBERGS, G., 1998: Effect of predatory mite *Blattisocius tarsalis* (Berlese, 1918) (Acari, Mesostigmata, Gamasina) on survival of *Trichogramma* sp. during the process of mass-rearing. In BRUNNHOFER, V., SOLDÁN, T. (eds): Proceedings of VIth European Congress of Entomology, Česke Budějovice, 1998, p. 396.
- SHCHERBAK, G.I., 1980: Mites of family Rhodocaridae of Palearctic. Naukova dumka, Kiev, 216 pp. (In Russian)