

Mycophagous beetles on sporocarps of macrofungi

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Abstract: Sporocarps of macrofungi provide habitat for a wealth of arthropods, especially for a large number of insect species. Diptera (flies) and Coleoptera (beetles) are the most common and important insects attacking fungi. These insects comprise both obligate and facultative user of fruiting bodies. There are also insect species that use sporocarps of macrofungi accidentally. The species composition of mycophagous insect communities varies depending on the characteristics of the fruiting bodies they use as habitats. Aphyllophorales have long-lived and hard sporocarps while fruiting bodies of Agaricales have fragile and short-lived. There are studies indicating that insects feeding on bracket fungi are monophagous or oligophagous and polyphagous insects feed on Agaricales. Some studies and also have shown that insects can use the sporocarps of Ascomycota as habitat. Our aims in this study identify mycophagous beetles (Coleoptera) from two macrofungi species. This research was carried out in Belgrade Forest in Istanbul. There are more than 400 plant species in the research area, including herbaceous and woody plants. *Quercus* spp., *Fagus orientalis*, *Carpinus betulus* and *Castanea sativa* are the best-known tree species. Approximately 150 species of macrofungi have been identified in Belgrad Forest and some of them cause rotting in trees. Our research was performed on two rotting fungi, *Fomes fomentarius* (L.) Fr. (Basidiomycota), 1849 and *Daldinia concentrica* (Bolton) Ces. & De Not., 1863 (Ascomycota). Brackets of *F. fomentarius* and stromata of *D. concentrica* were collected from dead or dying trees in 2014 – 2017. They were placed in plastic containers separately and left under laboratory conditions. The insects emerging from sporocarps were preserved in the Istanbul University Faculty of Forestry Entomological Museum. It has not been conducted any research on mycophagous insects in Turkey. Some insect species known to be mycophagous have been reported in our country without being associated with fungi. As a result of our study, 9 species from *D. concentrica* and 8 species from *F. fomentarius* were identified. Only one species, *Anaspis (Nassipa) flava* (Linnaeus, 1758), was found both of these fungi. The larvae of the genus *Anaspis* are lignicolous and the species of this genus normally occur on or about rotten wood and *A. flava*'s habitat is not associated with fungi according to current knowledge. *Biphylus lunatus* (Fabricius, 1787), *Platyrhinus resinosus* (Scopoli, 1763), *Dacne (Dacne) bipustulata* (Thunberg, 1781), *Orthocis lucasi* (Abeille de Perrin, 1874), *Anthelephila pedestris* (Rossi, 1790), *Olibrus* sp. Erichson, *Stenosis sardoa* (Kuster, 1848) and *Trixagus gracilis* Wollaston, 1854 was obtained from stromata of *D. concentrica*, while *Xylographus bostrichoides* (Dufour, 1843), *Dorcatoma (Pilosodorcatoma) minor* Zahradnik, 1993, *Dorcatoma (Dorcatoma) robusta* A. Strand, 1938, *Bolitophagus reticulatus* (Linnaeus, 1767), *Neomida haemorrhoidalis* (Fabricius, 1787), *Cis castaneus* Mellie, 1848 and *Rhopalodontus perforatus* (Gyllenhal, 1813) was found on brackets of *F. fomentarius*. All of the insect species from *F. fomentarius* except *A. flava* and also *B. lunatus*, *P. resinosus*, *D. bipustulata*, *O. lucasi* were found on *D. concentrica* are obligate mycetobionts insects. Although is the more research needed on these species, can be said that *A. pedestris*, *Olibrus* sp., *A. flava*, *S. sardoa* and *T. gracilis* are accidentally mycetoxenes. Findings from our study will bring a different perspective to the biodiversity investigations in our country. Due to the dead and dying trees were immediately cut off and removed from the area a small number of sporocarps could be collected. Therefore, the number of species of beetles found in this research remained below the similar studies. We think about that the presence of insects species associated with sporocarps of fungi especially obligate mycetobiont species in our research area is threatened.

Keywords: Mycophagy, Coleoptera, Sporocarp, *Daldinia concentrica*, *Fomes fomentarius*