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1. Introduction

Fruiting bodies of macrofungi and myxomycetes (= Mycetozoa) represent a suitable food source and habitat for the larvae of several insect groups, mainly flies (Diptera) and beetles (Coleoptera), but also tineid moths (Lepidoptera: Tineidae), springtails (Collembola), thrips (Thysanoptera) and hymenopteran parasitoids of all these insects. Most of the fungicolous insects (excluding parasitoids) are mycophagous or mycosaprophagous with various degree of specialisation on fungus host, while some groups are predaceous or polyphagous, but still more or less associated with fungi.

Two-winged flies (Diptera) belong to the most common and most frequent inhabitants of both the fresh and decaying fruit bodies of fungi, together with beetles (mainly from the families Ciidae, Staphylinidae, Erotylidae, Nitidulidae and Mycetophagidae), which usually prefer wood-decaying fungi (Polyporaceae). More than 25 families of Diptera have some species with fungicolous larvae and some of them as far as is known entirely comprise species associated with fungi (e.g. Bolitophilidae, Platypezidae).

In this work all available data on host fungi, parasitoids and habitat associations are summarized for Diptera reared by the author from fungi collected from 1998 to 2010 in the territory of the Czech Republic or Slovakia. Of the 115 families of Diptera currently known to occur in the Czech or Slovak Republics (Jedlička et al. 2009), species belonging to 27 families have been proved to develop in fungi in these countries.

This book is a new edition of the previous work (Ševčík 2006a), that was based on the field research carried out in the years 1998 – 2006, and it is updated with new records obtained in the last 4 years, including 54 additional species of Diptera, 61 species of fungi and 2 additional species of Mycetozoa. Several new colour photographs are also introduced in this edition.