BHT:Biota.Human.Technology, 2023. No1, P.34-40

УДК 574.4:595.767.29+593.191.1

NEW GREGARINES SPECIES (APICOMPLEXA: EUGREGARINIDA) OF DARKLING BEETLES IN STEPPE DNIPRO REGION.

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Gregarines (Gregarinasina: Apicomplexa) are unicellular organisms that live in the body cavities of numerous aquatic and terrestrial invertebrates, primarily in their digestive systems. The nature of the relationship between gregarines and their hosts is still not fully understood: some researchers consider them parasites that put pressure on the host population, while others define them as endobionts [1]. This issue still requires further research. Today, the scientific literature focuses primarily on faunal studies of gregarines. There are numerous references to gregarines, known from millipedes, ground and darkling beetles, dragonflies, crickets, cockroaches, crustaceans, earthworms, mollusks, echinoderms and other terrestrial, freshwater and marine organisms [2].

Compared to other parts of the world, data on the gregarine fauna of Ukraine is rather fragmentary. Since a significant part of our country is located within the steppe and forest-steppe zones, the darkling beetles (Tenebrionidae: Coleoptera) play a significant role in its entomofauna. There are numerous evidences of gregarines living in the body of beetles from this family, and some gregarine families (e.g. Stylocephalidae) are known only from darkling beetles. Gregarines are found in the digestive tracts of dozens of species of darkling beetles living in Southern, Western and Central Europe, Asia Minor and Central Asia, the Hindustan Peninsula, Indochina and the New World. As for Eastern Europe, there are only a few references from Bulgaria, and most Eastern European gregarines have been described from the entrails of ground beetles [3].

The lack of data on gregarines from the Ukrainian fauna actually prompted us to conduct the relevant research. The aim of our

work was to identify the gregarine fauna that inhabit the digestive tract of the most common darkling beetles in the Steppe Dnipro region. The beetles were caught using ground traps, and the gut contents were examined under a microscope. The identification of unicellular species was carried out according to standard morphological methods of Geus and Clopton [4].

The study involved 8 species of darkling beetles from 6 tribes, of which 7 species of gregarines from 3 families were recorded. One species was found from the Actinocephalidae family - *Steinina diaperis*, and 2 species from the Gregarinide family - *Gregarina ormierei* and *Gregarina ovoidea*. Three more species belonged to the family Stylocephalidae, namely *Stylocephalus longicollis*, *Stylocephalus oblongatus* and *Sphaerorhynchus cf. hamoni*.

It is known that a certain species of gregarine usually lives in more than one host species, which was confirmed by our research. All of the species we identified have been recorded in the darkling beetles, but we are expanding the list of their hosts for *G. ovoidea* (*Asida lutosa*), *S. gigas* (*Asida lutosa* and *Opatrum sabulosum*), *S. longicollis* (*Gnaptor spinimanus*) and *S. oblongatus* (*A. lutosa*, *Oodescelis melas* and *Pimelia subglobosa*). Our results indicate a significant species diversity of gregarines that mecate in the body cavities of darkling beetles in the Steppe Dnipro region. This correlates with the fact that steppe and other arid conditions favourable for the life of the darkling beetles are predominantly rich in gregarine fauna, which is explained by the number and diversity of hosts. For example, in the extremely arid conditions of the Atacama Desert, gregarines of the family Stylocephalidae are quite diverse [5]. However, it is obvious that the recorded species are only the "tip of the iceberg" and the fauna gregarines of darkling beetles in the region and insects in general will be much larger. This multifaceted and rewarding topic undoubtedly requires further research.

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