

XXVI OGÓLNOPOLSKA
KONFERENCJA HEMIPTEROLOGICZNA

“Mszyce i inne pluskwiaki”

Bieszczady - Berezka, 17 – 20 września 2019



Uniwersytet Rzeszowski

Organizatorzy

Zakład Zoologii Eksperymentalnej, Wydział Biotechnologii,
Uniwersytet Rzeszowski

Sekcja Hemipterologiczna Polskiego Towarzystwa Entomologicznego

Komitet Organizacyjny

dr hab. Roma Durak, prof. UR – przewodnicząca
dr hab. Beata Borowiak-Sobkowiak
dr hab. Iwona Kania, prof. UR
dr hab. Tomasz Durak, prof. UR
dr hab. Inż. Ewa Szpyrka, prof. UR
dr Mateusz Mołoń
dr inż. Joanna Kisała
mgr Jan Dampc
mgr Agnieszka Mołoń
mgr Wiktoria Jordan-Stasiło

Komitet Naukowy

dr hab. Roma Durak, prof. UR
prof. dr hab. Beata Gabrys
prof. dr hab. Aleksander Herczek
prof. dr hab. Michał Hurej
prof. dr hab. Bożena Kordan
dr hab. Cezary Sempruch, prof. UPH
prof. dr hab. Teresa Szklarzewicz
prof. dr hab. Karina Wieczorek

Copyright © by Polskie Towarzystwo Entomologiczne and PRODRUK
POZNAŃ 2019

ISBN XXXXX

Diversity of symbiotic microorganisms in leafhoppers (Cicadomorpha: Cicadellidae)*

Michał KOBIAŁKA¹, Anna MICHALIK¹, Jacek SZWEDO²,
Marcin WALCZAK³, Łukasz JUNKIERT³, Teresa SZKLARZEWICZ¹

¹ Department of Developmental Biology and Morphology of Invertebrates,
Jagiellonian University; e-mail: teresa.szklarzewicz@uj.edu.pl

² Department of Invertebrate Zoology and Parasitology, University of Gdańsk

³ Department of Zoology, University of Silesia

Symbiotic systems of 23 species of leafhoppers were examined by means of histological, ultrastructural and molecular methods. Results of our studies revealed that leafhoppers are characterized by a large diversity of accompanying symbionts. In the body of 13 species (*Evacanthus interruptus*, *Arthaldeus pascuellus*, *Athysanus argentarius*, *Deltocephalus pulicaris*, *Doratura stylata*, *Errastunus ocellaris*, *Euscelis incisus*, *Jassargus flori*, *Jassargus pseudocellaris*, *Psammotettix alienus*, *Psammotettix confinis*, *Turrutus socialis*, *Verdanus abdominalis*) ancestral symbionts – bacteria *Sulcia* (phylum Bacteroidetes) and *Nasuia* (phylum Proteobacteria, class Betaproteobacteria) occur. In *Macrosteles laevis*, apart from ancestral symbionts, gammaproteobacteria *Arsenophonus* are present. In 2 species (*Elymana kozhevnikovi* and *Elymana sulphurella*) bacteria *Sulcia* and *Nasuia* co-reside with novel symbionts – gamma-proteobacteria *Arsenophonus* and *Sodalis*. In 3 species (*Cicadella viridis*, *Balclutha calamagrostis* and *Balclutha punctata*) bacteria *Sulcia* are accompanied by bacteria *Sodalis*. In 4 species (*Fieberiella septentrionalis*, *Graphocraerus ventralis*, *Orientalis ishidae* and *Cicadula quadrinotata*) bacteria *Sulcia* and yeast-like microorganisms are present. Symbionts may be localized in bacteriocytes, fat body cells, midgut epithelium cells, in hemolymph. In contrast to the large diversity of types of symbionts and their distribution in the insect body, the mode of transmission of these microorganisms from one generation to the next is identical – in all the examined species bacteria/yeast-like symbionts invade the posterior ends of ovarioles which contain vitellogenic oocytes.

* This study was funded by the research grant 2015/17/N/NZ8/01573 from the National Science Centre, Poland and grants from the Jagiellonian University: K/ZDS/004838, DS/MND/WBiNoZ/IZ/5/2013, DS/MND/WBiNoZ/IZ/27/2013, DS/MND/WBiNoZ/IZ/14/2014, DS/MND/WBiNoZ/IZ/22/2015, DS/MND/WBiNoZ/IZ/23/2016.