

ABSTRACT

Cytogenetics of bed bugs (Cimicidae) as a model true bugs (Insecta: Heteroptera)

The thesis provides current opinions about a phylogeny of bed bugs, family Cimicidae, and their classification within the order Heteroptera. There are briefly summarized cytological data about the order Heteroptera, known karyotypes of the cimicid subfamilies and introduction to cytogenetics of species *Cimex lectularius* Linnaeus, 1758.

Heteroptera species differ from other organisms by holokinetic chromosomes, a character, in which quite frequently take place chromosomal fragmentation and fusion. Several families possess smaller pair of m chromosomes, which behave during meiosis differently from the other chromosomes. Diploid chromosomal number is extremely variable, it ranges from four (family Belostomatidae) to 80 chromosomes (family Miridae). The behavior of chromosomes in the family Cimicidae is very specific. Sex-chromosomes univalents are connected by thread-like collochores and form so-called pseudobivalents during achiasmatic post-reductional meiosis. Rare polymorphism in a number of X chromosomes occurs in *Cimex lectularius* populations. The diploid karyotype always consists of 26 autosomal chromosomes and at least two but up to 15 X chromosomes and one Y chromosome. The number of X chromosomes can be variable even within one specimen in its germinal cells.

The cytogenetics research of wide range of *C. lectularius* populations from different hosts is planned for a master thesis. The particular aim should be to clear a general mechanism of development of multiple sex-chromosomes. The research is related to molecular genetic studies of this species.