

SUMMARY OF THE Ph. D. THESIS

The main objectives of this dissertation were to contribute to general understanding and to fill some major gaps in our knowledge of ostracod biology. Ostracods are otherwise a very well explored group of crustaceans. This is true mostly in ecological and morphological aspects of their biology that have been emphasized since these are utilized in their taxonomy and ecology (very often used in palaeoecological reconstructions). This situation can be well illustrated by the fact that very few was known about hepatopancreas and nothing about free cells (hemocytes) in ostracods. Further, there is no proper description of the complexity of the female reproductive organ (FRO) and the processes of insemination and fertilization still remain obscured. A very similar situation existed concerning the karyology of freshwater ostracods. The only available data on freshwater ostracod karyology came from the 1930s to 1950s with exceptions some papers published later. In all these publications merely descriptive karyology has been tackled. Already in 1960s and 1970s an unusual variability in chromosome numbers in parthenogenetic females had been pointed out. Nonetheless, these highly relevant implications for ostracod cytogenetics in the context of their reproductive modes remained without attention for a long time. For these reasons, ostracod microanatomy and cytogenetics in relation to the evolutionary biology of their reproductive modes were investigated in the framework of this thesis. Moreover, other topics related to their reproduction biology had been also taken into account. Namely, intracellular parasites as possible reproductive manipulators inducing parthenogenesis were investigated. Further, the knowledge obtained by microscopic analysis of the FRO in living animals has been utilized during holotomographic investigation of Cretaceous microfossils and their reproductive organs. This resulted in indirect evidence of existence of giant sperm in a lineage of non-marine ostracods at least 100 million years old. Basic research including pioneering approach in ostracod science has been undertaken in the framework of this thesis (methods of molecular cytogenetics have so far never been applied in ostracods as well as in other micro-crustaceans). Results obtained contributed to a better understanding of ostracod biology, however, more issues and questions arisen than were answered. Therefore, further research and methods optimizing are proposed to bring these results to publishable condition.