

Date: Budapest, 30 August 2018

Review of the habilitation thesis
"TRENDS IN THE EVOLUTION OF ERIOPHYOID MITES (ACARI, ERIOPHYOIDEA) ON
PLANTS"

submitted for the degree of Doctor of Biological Sciences by Dr. Filipp E. Chetverikov

The topicality of the dissertation

The representatives of the superfamily Eriophyoidea are the smallest plant parasitic mites. Yet the phylogenetic relationships of Eriophyoidea in Acariformes have remained an enigma. Therefore Dr. Filipp E. Chetverikov chose a very hard, moreover a promising matter. The topic of the thesis is absolutely current and relevant in the context of the study of relationships of Eriophyoidea within Acariformes.

Introduction

The **Introduction** contains a well-documented overview about the research history of eriophyoid mites of different research periods including the old and recently developed methods.

Aims and methods

Dr. Chetverikov bravely sets four aims of his study: 1) analysis of body plan and embryonic development of eriophyoid mites; 2) reconstruction of phylogeny of Eriophyoidea at family level and links with the host plant groups; 3) main evolutionary trends of eriophyoid mites on plants, 4) origin of Eriophyoidea and possible links with other Acariformes. All goals are relevant and in close connection with the comprehensive topic of the thesis. He gives the places and the applied methods of the study in details to the necessary extent.

The **Chapters** follow the stated goals. The structure of the thesis conforms to all requirements of a well-structured dissertation.

The **Conclusions** summarizes the six main statements on the cladistic analysis, macrophylogeny of Eriophyoidea, the main evolutionary trajectories of eriophyoids, gallogenesis and morpho-ecological reversals. The author sums up his main theses in three points.

In the **Appendix** the author visualizes his most important results in three tables and 29 figures using different and excellent microscope images. They are very spectaculars and informative.

Concerning the habilitation thesis I have a question:

1. As compared to your cladistic analysis results with the results of the study of Hong and Zhang (1996) [A cladistic analysis of the Eriophyoidea (Acari: Prostigmata): tests of monophyly of families. Systematic and Applied Acarology 1(1): 107–122.] what is your opinion about the taxonomic position of the present families in the superfamily Eriophyoidea.

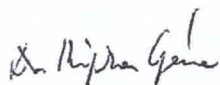
Conclusions

Research work of the author is ranging over a wide field. His dissertation gives a flat contradiction to the actual statement that taxonomy is in crisis, and Taxonomic Impediment is a big problem. The author organizes and realizes a high-quality research work using the most recent microscopic and molecular techniques and methods. In his comprehensive studies he bestows particular attention on the very minute details of the eriophyoid morphology and embryonic development and at the same time systematizes, evaluates and discusses the extant knowledge on the special topic. He provides a new hypothesis on the origin of Eriophyoidea, i.e. the ancestors of Eriophyoidea were soil-dwelling mites, then left the soil and

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became plant-inhabiting parasites. His explanations are suitable and focus on the relevant topics. His dissertation is a remarkably extensive synopsis and a significant progress in acarology. So far, the author has presented his novel results on seven international symposia, and 51 of his 56 cited articles were published in several peer-reviewed international journals. The dissertation is a significant contribution to the knowledge on eriophyoid mites.

Based on the dissertation and the numerous excellent papers I highly recommend accepting the thesis for defence and, after oral presentation and discussion, giving the degree of Doctor of Biological Sciences to Dr. Filipp E. Chetverikov.



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