



REVIEW OF DIPLOMA THESIS

Title: Evolution of sex chromosomes and karyotypes in boas and pythons

Author: Bc. Tomáš Charvát

Reviewer: Mgr. Zuzana Majtánová PhD.

The thesis aims to explore the karyotype evolution and the distribution of repetitive elements of eight henophidian and one caenophidian snake species and to reveal their sex chromosomes using various cytogenetic methods. Author thoroughly presents the state of the art in the study of karyotype evolution and sex chromosomes detection in the group. The topic of the thesis is not trivial and author demonstrates his knowledge in this area by the wide range of cited literature. The presentation of the thesis is fluent and I appreciate the choice of English as the language of work. In about 35 pages, the thesis provides a sufficient level of details. Tomáš Charvát also proved the ability to use his knowledge and practically applied various laboratory techniques and cytogenetic methods to fulfil the aims of the study. I appreciate the quality of graphical presentation of karyotypes and chromosome stainings. The results of this thesis are promising with the potential to be published in IF journal. I have just few remarks before submission - the bigger from the homologous chromosome should be situated on the left side. I would also appreciate arrows marking homologous chromosomes with unequal distribution of heterochromatin or even better karyotypes from C-banded metaphase spreads. Author should also check italics in species names and abbreviations of genus names when repeatedly mentioned in the text.

Defence questions:

1. Which mechanisms could lead to the occurrence of both ZW and XY systems in the Boidae family?
2. Author revealed aneuploidy in female king cobra (*Ophiophagus hannah*), with $2n=37$. How many karyotypes of this individual have been inspected? Which methods, in

addition to CGH, can be used to confirm that the additional micro chromosome is putative W₂ chromosome?

3. How do you explain the variability in chromosomal resistance to Ba(OH)₂ treatment among tested species?

Tomáš Charvát presents interesting and very well composed work which meets the standard requirements imposed on the diploma thesis, therefore I recommend its acceptance to the defence with an excellent evaluation.

2. 9. 2020 in Prague

Zuzana Majtánová