

### Overall Assessment:

This thesis is an outstanding piece of research and writing, distinguished by: through use of both primary and state-of-the art methods and materials; sophisticated specification of problems with higher-up experimental design; a deep and wide-ranging engagement with literature; clear demonstration of distribution of mosquitoes and biting midges species in Czech Republic; fine critical skills; an ability to mount detailed and cogent arguments; and a real gift for lively and yet carefully nuanced writing.

I was very pleased to read and review Jana Radrova's dissertation thesis. Its scientific merit is high reflecting Jana's methodological approach to studying the distribution of mosquito and biting midges species, spread of the WNV virus vectors, feeding behavior and spatial distribution of *Culex* mosquitoes, an avian trypanosome transmitted by *Culex* mosquitoes and diversity of biting midges in the country. It also reflects well upon Jana's adaptability to contribute towards the development/adapt of new methodologies, acquiring new skills and performing meaningful experiments in both laboratory and field. Throughout the studies, she published one paper as first author in *Journal of Medical Entomology*, two papers as second author in *Journal of Vector Ecology* and *International Journal of Systematic and Evolutionary Microbiology*, one submitted paper as first in *Journal of Medical Entomology* under following four different but interrelated specific objectives:

- 1) To describe mosquito species occurring in selected wetland of the Czech Republic
- 2) To study feeding preferences of selected mosquito species
- 3) Detection of transmitted pathogens in mosquitoes with focus on West Nile virus and trypanosomatids (the core of the thesis)
- 4) To describe biting midges fauna attacking livestock and hoofed game in the frame of Bluetongue virus surveillance program.

For me, it is crucial to find out accurate result (s) and new areas/ future topics from a set of given studies during PhD studies. This proves and shows the quality of the study and adaptation and concentration of the candidate to his/her own experiments. In this set of study, I determined that Jana has already reached a total of 8 exact results and revealed 2 new/future study areas. The fact that each one contains very important criteria which can be titled for other PhD thesis and/or investigations.

Moreover, particularly in the part of "*Trypanosoma culivacium* sp. Nov., an avian trypanosome transmitted by *Culex* mosquitoes", the author and her colleagues clearly showed that A novel avian trypanosome isolated from *Culex* mosquitoes, is described on the basis of naturally and experimentally infected vectors and bird hosts, localization in the vector, morphological data and even molecular data. The authors claimed that this study provides the first comprehensive description of a trypanosome species transmitted by mosquitoes which is very important. This study, on one side, demonstrated artificial transmission of parasites from bird hosts, and on the other side, it proved the natural hosts of this parasite are insectivorous songbirds. It is quite important finding. Because of particularly with this result and altogether the findings from other objectives of the thesis, I found Jana's research to be on the whole original.

Overall, no important mistake in experimental design of this thesis has been determined. But, in paper one and its related studies, the analyses should have been more detailed by authors.

Jana has shown appropriateness for a diverse set of methodologies, ranging from the biological (mosquito and parasite culture), to molecular (RAPD, PCR), to ecological (spatial distribution, host-vector-parasite relations and effective factors on this triangle) and to the bioinformatics and phylogenetic. Each appears to be conducted with considerable expertise to obtain high quality, publishable results.

Jana's interpretation of her results is comprehensive, comparable and well-balanced-taking care to not over interpret her data but state where it makes an important contribution to the field.

I found Jana's thesis to be well set out and easily digested whilst presenting an up to date and scientifically accurate synthesis of the topic of vector distribution and vector-parasite-host relation. Jana has written a very comprehensive introduction and review. Information on the subject of mosquito and biting midges has been still accumulating, sometimes it seems instead of things getting clearer they are getting more confused. We know that in many instances, previous results are being challenged by new findings. In this study, Jana has offered more new challenges with her cogent arguments, and she interpreted them very well.

### **Specific critical comments:**

I would like Jana to make it clearer in her thesis what she did for mainly vector distribution and vector-parasite-host relation study. This was absolutely collaborative effort involving at least several labs and studying at least in two regions of Czech Republic.

First, there are some misspellings found throughout the thesis, which I have carefully checked for.

**Introduction:** When you write the species names first time, please use "binominal nomenclature" for scientific full name.

**Page 4:** in the Faunistic part; this part has to be rewritten. Because numbers calculated for Czech Republic is not correct. Moreover this paragraph is not easy to understand.

**Page 5, Table 1:** Numbers of the table and numbers given in page 4 are not same.

**Page 8/Paragraph 2/ Row 7:** Also Cx. quinquefasciatus is one of the vectors of WNV. See Gunay et al. 2015.

**Page 13 / Paragraph 3 / Row 2:** .....in our country go back a in the past,.....: remove "a"

**Page 14/ Paragraph 1 / Row 10:** ....., five new species were added.....: not new species but new records.

**References cited:** Please recheck the references cite and the text in terms of references. There are some missing references and non-matching references.

### **General Questions and comments:**

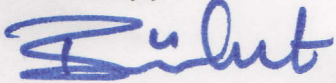
First, I frankly say that I have no question in this situation because I will not able to attend the defense section.

### **Statement:**

The reviewer believes that the PhD candidate, Jana Radrova, has demonstrated her qualification for scientific work at the PhD level. The thesis fulfills qualitative requirements for a PhD dissertation and fulfills also the formal rule as far as the number of published papers in peer-reviewed and impacted journals is concerned. Moreover, the candidate published (3) and/or submitted (1) papers more than be needed.

In conclusion, I want to congratulate Jana and her supervisor Doc. Jan Votypka for the excellent study. I find the study of Jana RADROVA and her thesis fully deserving of a PhD. I recommend that the candidate be awarded the degree of Doctor of Philosophy.

Sincerely yours,



Prof. Dr. Bülent ALTEN  
Hacettepe University