



## Referee's comments to PhD thesis of Mgr. Magdaléna Jančářová "Critical factors affecting pathogen development in sand flies"

Submitted PhD thesis of Magdaléna Jančářová, PhD student of the Faculty of Science, Charles University, was elaborated at the Department of Parasitology under the supervision of Professor Petr Volf and co-supervised by Assoc. Professor Jan Votýpka. The group of Professor Volf focuses on the sand flies as transmitters of pathogens and has outstanding results in the field that guarantees the international respect of the group.

The PhD thesis of Magdaléna Jančářová is based on two original first-author papers published in well-recognized international journals (*Journal of Medical Entomology* and *Parasites and Vectors*) and one manuscript. The fourth co-authored paper relevant to the thesis was published in *PLoS Neglected Tropical Diseases*.

The thesis is organized in a standard format comprising introduction, brief description of the aims/objectives, published papers, and importantly, summary and conclusions that critically discuss own results with literature data. A sufficient, up-to-date list of referred papers is included.

The well-written Introduction provides an overview (i) on barriers in insect vectors for arboviruses, (ii) barriers present in sand flies for *Leishmania* parasites and (iii) last but not least an overview on gregarines as typical pathogens for insect or invertebrates in general. The clearly formulated aims are sufficiently solved in original papers. I have appreciated the part Summary and Conclusions that briefly, in a clear way summarizes and discusses results obtained in PhD theis.

I am not going to discuss the details of published papers because the manuscripts underwent a rigorous per-review process. Indeed, I would like to ask questions that should be rather considered as "catalysts" of the discussion.

- Obligatory question concerns the manuscript "Experimental infection of sand flies by Massilia virus and viral transmission by co-feeding on sugar meal". Is there something new?
- Sand fly distribution is limited to areas that have temperatures above 15.6 °C for at least three months of the year (Lawyer and Perkins 2000). Predicted climatic changes can lead to an expansion in the range of sand flies in Europe including large areas of north-western and central Europe. Magda has described that temperature during larval development and female size of *Phlebotomus sergenti* did not affect infection

parameters of *Leishmania tropica* but effectively reduced gregarines *Psychodiella sergenti*. Shall we be concerned about spreading of *Leishmania* or other sand-fly-borne pathogens in our country.

In conclusion, I appreciated to read the thesis of Mgr. Magdaléna Jančářová and I can fully recommend it for the fulfillment of the degree PhD.

A handwritten signature in blue ink, appearing to read 'RNDr. Bilej', with a stylized flourish at the end.

Prague, August 30, 2018

RNDr. Martin Bilej, DrSc.