



The hematological response of common carp *Cyprinus carpio* to experimental infection with blood stage of the myxozoan parasite *Sphaerospora molnari*

Bachelor thesis: Anna Tomanová

As the title indicates, in her bachelor thesis, Anna Tomanová aimed to investigate the hematological response of common carp to the myxozoan parasite *Sphaerospora molnari*. The thesis follows a standard format and is divided into logical chapters. I appreciate Anna's decision to walk the extra mile and write the thesis in English. Despite the occasional unusual choice of words, the thesis is written in a high level of scientific English with minimum typos.

The introduction is very detailed and provides an extensive overview of the studied topic. On 10 pages, Anna demonstrated the ability to read, understand and extract information from scientific literature (she cites almost 100 articles) and explain it to the reader in a clear and logical way. In next section, Anna defines clearly the aims of the study and plans 9-week experiment to answer her questions. In her effort to describe the hematological response of common carp, Anna shows her commitment by analyzing almost two hundred slides with blood smears of infected fish, in order to elucidate the kinetics of various populations of leukocytes. The obtained data are summarized and clearly presented in the results section of the thesis. In the light of the great introduction, I wish Anna would elaborate a bit more on the discussion. There, she merely summarizes her findings and discusses them superficially.

For the defense, I have following remarks:

- a) In the graphs showing the number of monocytes and granulocytes in the blood, the error bars representing the standard deviation are higher than the arithmetic mean. Also, it is a good practice to start the y-axis of graphs with zero (hematocrit and erythrocytes).
- b) In the Material and method section, it is mentioned, that parasite blood stages were counted. Yet, I didn't find any graph with their numbers in the result section. Assuming the values are available, are they in agreement with the data obtained by qPCR in Jedličková 2017?
- c) In fig 9. of the thesis (Mean cell volume), the data for day 7 is missing? Could you explain why?
- d) On page 27 it is stated that „On 28 dpi the increase in other organ is caused by the presence of blood stages in the capillaries “. Is there any evidence for this notion?
- e) If infection with *S. molnari* induce specific antibody responses in carp, what isotype would you expect to be dominant? Also, out of curiosity, do you expect differences in the antibody responses of experimentally infected fish comparing to natural infection?

Overall, the thesis is clear, well written and provides valuable data describing the kinetics of host-parasite interaction on unique myxozoan infection model. In the field of myxozoan parasites, the complexity is unprecedented, and Anna contributed greatly to future endeavors by providing a solid foundation for further exploration of the long co-evolutionary relationship of common carp and *Sphaerospora molnari*. For all above-stated reasons, I would recommend her for defense.

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