

REFeree'S REPORT

Of the thesis presented by Mgr. Marta Chanová (Department of Parasitology, Faculty of Science, Charles University in Prague): BIRD SCHISTOSOMES: DEVELOPMENT OF SCHISTOSOMULA WITH FOCUS ON *TRICHOBILHARZIA* SPP.

The thesis presents a compiled study comprised of a general part on 28 pages and 3 previously published papers in the CC parasitological journals. Mgr. Chanová is the first author of all the papers presented, besides of a number of conference presentations. The thesis itself encompasses 84 relevant literature references.

The thesis is aimed at interesting and actual problems of biology of the first developmental stage of bird schistosomes in the final obligatory and/or non-compatible hosts, i.e. schistosomulum. An attention was focused especially on completing the data on unknown phases of schistosomulum development, its migratory routes through the host body, and the feeding habits during the migration. In addition, the last part of the thesis is aimed to study in vitro cultivated schistosomula and their comparison with those developing in vivo. Enhancing cultivation methods will be used to mass production of schistosomula suitable for further studies of host-parasite interactions.

Model bird schistosomes *Trichobilharzia szidati* and *T. regenti* are of importance and interest not only from the medical point of view as the causative agents of swimmer's itch and close relatives of human schistosomes, but also from the biological and phylogenetic point. They represent interesting model species being closely related but having considerably different migration routes within their vertebrate hosts. Using sophisticated experiments, the thesis discloses new interesting aspects of lung phase of schistosomula migration within avian and mammalian hosts in *T. szidati*, and analyses terminal part of the migration route of neurotropic *T. regenti* in bird hosts. Moreover, in vitro cultivation of early schistosomula of both species has been optimized in some measure and the goals have been apparently fulfilled.

The INTRODUCTORY CHAPTERS represent a compilation of current knowledge of biology of *T. szidati* and *T. regenti* intravertebrate stages and their development in vivo and in vitro. This text comprises relevant literature data, own results and also some unpublished facts. The review is regarded by the author as one of thesis objectives what seems rather unusual. The chapter "THE AIMS OF EXPERIMENTAL PART OF THE PRESENT THESIS" reflects the three published papers; they are included directly into the thesis and substitute in fact the conventional chapters Material and Methods, Results and Discussion. CONCLUSIONS are represented by a list of brief statements which express the essential results of the thesis but should be a little more specific.

THE QUALITY OF FORMAL PROCESSING is good. The introductory part is written in an Advanced English with minimum typing errors. From my point of view, the formal structure of the thesis is unusual as mentioned above. On the other hand, the work contains all necessary information and already reviewed papers. The thesis is apparently appropriate to the defence. Some formal shortcomings are marked in the thesis.

THE QUESTIONS AND REMARKS ARE AS FOLLOWS:

- Why do you use the problematic name *Trichobilharzia ocellata* in the Introduction part? Do you think that any of North American *Trichobilharzia* species belong to *T. ocellata*? In any case, a Note published in your third paper (Parasitol. Res. 2009, 104:1445-1452, p. 43 of the thesis), i.e. “the European *T. ocellata* corresponds with *T. szidati* but the North American isolates are not identical with *T. szidati* from Europe (Rudolfová et al., 2005)” should be incorporated also into the Introduction.
- You have stated that “pathological consequences of bird schistosome infections caused by schistosomula are of high significance, contrary to mammalian schistosomes (p.5, 17). Have you any hypothesis why it is true?
- Please specify your statement, that analogically to mammalian schistosomes, also bird species parasitizing shortly living hosts might produce eggs faster than the other (p. 12).

THE GENERAL EVALUATION

I state that the findings of Mgr. Marta Chanová presented in her thesis "Bird schistosomes: development of schistosomula with focus on *Trichobilharzia* spp." are original and that she has clearly demonstrated her erudition in solving of the current scientific problems using appropriate modern methodologies. The results of the PhD. thesis are of remarkable quality and the author has demonstrated possessing the skills required for a scientific work. The proposed thesis fulfils all the requirements constituted by the law, therefore I fully

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it for the acceptance and sequential defence.

Košice, November 2009

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