



Confidential

Supervisor's Review of USB RIFCH PhD Thesis

Surname of the PhD student: Pavlo Fedorov	Name of supervisor: Borys Dzyuba
Title of PhD thesis: Fish spermatozoa metabolites content in various physiological conditions	

OVERALL COMMENTARY ON THE PhD THESIS

This thesis is devoted to the study of content of metabolites involved in bioenergetics pathways, which support spermatozoa physiological functions in fish.

Introduction part of the thesis is focused on following aspects: 1) fish spermatozoa are known as cells possessing alternation between "resting" and intensive energy consuming phases of their metabolic activity; 2) description of metabolites content is one of the directions towards understanding of bioenergetics processes involved in sperm maturation and motility, which are required for successful fertilization; 3) correct evaluation of metabolites content can be performed by application of modern analytical techniques, which are needed to be developed for fish sperm studies.

Results section of the thesis consists of description and validation of elaborated method of simultaneous quantification of the content of metabolites (ATP, CP, ATP, AMP) involved in bioenergetics processes in fish spermatozoa (Chapter 2). Outputs of this method application are presented for the study of spermatozoa maturation (Chapters 3, 4), storage (Chapter 4) and motility (Chapters 3, 4, 5). Taxa specific physiological features of fish spermatozoa are considered in the thesis, and correct selection of fish models allowed to describe new aspects of sperm biology for Anguilliformes, Acipenseriformes, and Salmoniformes. As the study was performed on aquaculture valuable fish species, obtained results make undoubted original contribution to basic and applied fish spermatology. Finally, discussion part (Chapter 6) summarizes obtained results and presents correct conclusions.

I see that the first results on application of modern methods of mass spectrometry for quantification of metabolites and sperm motility description by cluster analysis give useful outputs presented in the thesis and have high potential for future research activity in Laboratory of Reproductive Physiology of RIFCH.

FINAL RECOMMENDATION

- can be recommended for defence of PhD Thesis
- can be recommended with reservations for defence of PhD Thesis
- can not be recommended for defence of PhD Thesis

28.4.2017, Vodňany
Date and place

Dzyuba, Borys
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surname and signature