University of South Bohemia in České Budějovice
Faculty of Fisheries and Protection of Waters
Zátiší 728/II
389 25 Vodňany

Supervisor´s review of diploma thesis

Student:	VU THI TRANG
Field of study:	Fishery and Protection of Waters (DP)
Form of study:	Prezenční
Title of the final thesis:	Utilization of genome editing technology to knock out dnd1 gene in sturgeons
Supervisor of the final thesis: Name, surname, titles:	doc. Ing. Martin Pšenička, Ph.D.

1. Formulation of the thesis´s objectives

An introduction to the solution of problems is evaluated, i.e. the justification of the need for the solution of the thesis and the understandability and logicality of the stated objectives with respect to the thesis topic:

Evaluation (mark from 1 – the best to 4 – insufficient):   ● 1   ○ 2   ○ 3   ○ 4

Comment on the evaluation (justification of the proposed mark). Comment is compulsory.

The introduction is written very well. It contains all important aspects of the subject and justification of the research. Sturgeons are critically endangered fish species and there is utmost need to conserve these living fossils. In order to accomplish this goal, the sturgeons having short reproductive cycle should be sterilized in order to prepare host for surrogate production by knocking-out dnd1 gene. Dnd1 protein is responsible for migration and survival of Primordial Germ Cells (PGCs). Knock-out of dnd1 was done by CRISPR/Cas9, a cutting-edge genome editing technology that presents advantages antisense morpholino oligonucleotide (MO).

2. Method of the thesis´s solution

The material and methodology used to solve the objectives of the thesis including the way of statistical analysis of data (suitability, comprehensibility, relevance, complexity) are evaluated. In case of the review-type thesis the content structure, the logicality of thesis segmenting, the concept of the review thesis are evaluated. Adherence to the instructions of the supervisor, keeping the research plan and other information given on the assignment form, the degree of self-involvement in the solution of the thesis, the autonomy, creativity, etc. are also evaluated.

Evaluation (mark from 1 – the best to 4 – insufficient):   ⦿ 1   ○ 2   ○ 3   ○ 4

Comment on the evaluation (justification of the proposed mark). Comment is compulsory.

Material and methodology of thesis have been evaluated that includes the way of statistical analysis of data. Author of thesis have been completely involved in following supervisor's instructions to solution of thesis by herself own. Author has troubleshooted the problems by her-own during the course of her research work.

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3. Work with information

The extent and relevance of used information accessible in the literature, its topicality, truthfulness, complexity, the way of interpretation of the information and extent of information used, the method of description of results and their comparison with other available information, the ability to draw conclusions are evaluated.

Evaluation (mark from 1 – the best to 4 – insufficient):   ⦿ 1   ○ 2   ○ 3   ○ 4

Comment on the evaluation (justification of the proposed mark). Comment is compulsory.

Considerable literature is available regarding the Sturgeons, Dnd1 protein, Primordial Germ Cells, and CRISPR/Cas9. The used methods are comparable with methods/protocols already available. Conclusion can be drawn from work done.

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4. Formal processing of the thesis

Compliance with the uniform style, graphic layout, clarity, level of language processing, adherence to the citation standard, quality of graphs and images, etc. are evaluated.

Evaluation (mark from 1 – the best to 4 – insufficient): ◯ 1 ◉ 2 ◯ 3 ◯ 4

Comment on the evaluation (justification of the proposed mark). Comment is compulsory.

Formal processing of the thesis has been evaluated, the references are set according to instructions, language of thesis is clear. Quality of graphs and images is good.

5. Fulfilment of the thesis's objectives

The comparison of the results of the work with the stated objectives in the assignment is commented and the reasons for the deviations described (unexpected circumstances when solving vs. not keeping the supervisor's instructions by the student, the way of approach to the thesis), i.e. could they be influenced or not by the student's approach.

Evaluation (mark from 1 – the best to 4 – insufficient): ◉ 1 ◯ 2 ◯ 3 ◯ 4

Comment on the evaluation (justification of the proposed mark). Comment is compulsory.

The objectives of thesis were set before experiment was started, and those objectives were obtained during the course of research. Supervisor's instructions were followed during experiments.

6. Formulation of the thesis´s conclusions

The comprehensibility of the conclusions and their relevance to the findings (scientific or informative) are evaluated.

Evaluation (mark from 1 – the best to 4 – insufficient):   ○ 1   ◉ 2   ○ 3   ○ 4

Comment on the evaluation (justification of the proposed mark). Comment is compulsory.

Conclusions were drawn at the end of experiment and related scientific findings were recorded. Findings were consistent with the objectives set before start of experiment.

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7. Professional benefit of the thesis

It is evaluated with regard to the way the work is done and the rate of data extraction, the way of interpretation, the scientific concept of the work, etc.

Evaluation (mark from 1 – the best to 4 – insufficient):   ○ 1   ◉ 2   ○ 3   ○ 4

Comment on the evaluation (justification of the proposed mark). Comment is compulsory.

Findings of thesis benefits professionally regarding role/function of dnd1 protein in survival and migration of Primordial Germ Cells; however, it also opens new challenges for further related research to be conducted.

Overall evaluation of the thesis:

Proposal of the evaluation with the mark:

◉ excellent
○ very good
○ good
○ insufficient

I recommend the thesis for defence:

◉ yes
○ no

Questions for defence:

Question for defence 1
(compulsory)

Why you selected sterlet for your experiment?

Question for defence 2
(compulsory)

Why you chose to use CRISPR/Cas9 to knock-out dnd1 gene? Antisense morpholino oligonucleotide have already been used in your lab for knock-down of dnd1 gene.

Other comments, expressions and suggestions for defence of the thesis, respectively to its further use:
(optional)

The work was conducted according to published protocols; however, further detailed work regarding CRISPR/Cas9 in sturgeons is suggested.

Date and signature:

Date:

26.05.2017

Signature of the student´s supervisor: