

REVIEW OF PHD THESIS

INFO

Title of PhD thesis: Molecular Characterisation of Parvalbumin Gene: Evolutionary Insights and Forensic Applications for Fish Species Identification and Authentication

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Reviewer: prof. Ing. Lukáš Kalous, Ph.D.

Affiliation of reviewer: Czech University of Life Sciences Prague, Faculty of Agrobiolgy, Food and Natural Resources, Department of Zoology and Fisheries

ANNOTATION

This thesis has 145 pages without appendices. The appendices consist mainly of supplementary data. The thesis is divided into an introduction and four consecutive chapters, one divided into two subchapters. The chapters or subchapters are presented as publications, which are already published works, a total of 5 publications. The thesis ends with a chapter, Conclusion and Future Outlook.

EVALUATION OF THE FORMAL ASPECT OF THE THESIS

Formally, the thesis is clear and well-structured, with minimal typing errors and inconsistencies. The graphic part is of a high standard and corresponds to the high quality of the whole work. I have only some minor comments on the quality of some figures. The quality or reduction of some of the images is the limit of legibility. However, I am aware that they are rather illustrative, and all the details are not necessary to read all the letters shown in the DNA sequence. Overall, Subham's thesis is formally very compact and of high quality.

EVALUATION OF ORIGINALITY AND SCIENTIFIC SIGNIFICANCE

Subham's thesis is original and represents a significant contribution to the global scientific community. The thesis is an interesting blend of forensic science with a view to fish evolution and the necessary methodological work to make the findings applicable. The new findings presented in this thesis can be used in a range of follow-up studies, from human health issues to basic research in fish systematics to the preparation of legal documents using methods for the identification of fish and fish products. The results of the submitted work have been successfully published in high-quality international scientific journals and have undergone a rigorous peer review process, confirming the quality of the submitted thesis.

COMMENTS AND SUGGESTIONS

I am pleased to write that I have no comments on the work presented that would merit further discussion. I appreciate the coherence and quality of the work. Some dissertation reviews sometimes resort to a description of individual chapters (or scientific articles) of the dissertation. In this review, I have concentrated only on the evaluation, and I was very pleased to see that an excellent summary of the whole thesis is presented in the "Preface". Such a summary could serve as an example of how it should be written.

CONCLUSION AND RECOMMENDATION

In conclusion, it is my duty to state that the work of Subham Mukherjee is of high quality, achieves a high formal standard, provides new insights for science, and advances the understanding of the various uses and roles of the parvalbumin gene in fish, but also in human society. I recommend that the thesis submitted be defended and that, on successful completion, Subham Mukherjee be awarded the degree of *Doctor Philosophiae*, abbreviated PhD.



In Únětice February 23, 2023

prof. Ing. Lukáš Kalous, Ph.D.