



Universiteit  
Leiden  
The Netherlands

## Resolving a bioindicator diatom species complex using genomic approaches for freshwater biomonitoring

Ciftci, O.

### Citation

Ciftci, O. (2023, October 17). *Resolving a bioindicator diatom species complex using genomic approaches for freshwater biomonitoring*. Retrieved from <https://hdl.handle.net/1887/3643932>

Version: Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/3643932>

**Note:** To cite this publication please use the final published version (if applicable).

# List of Publications

- Ciftci, O., Wagemaker, C.A.M., Mertens, A., van Bodegom, P., Pirovano, W., Gravendeel, B. 2023. Genotyping by sequencing for estimating relative abundances of diatom taxa in mock communities. *BMC Ecology and Evolution*, 23(1), 4.
- Ciftci, O., Alverson, A.J., van Bodegom, P., Roberts, W.R., Mertens, A., Van de Vijver, B., Trobajo, R., Mann, D., Pirovano, W., Van Eijk, I., Gravendeel, B. 2022. Phylotranscriptomics reveals the reticulate evolutionary history of a widespread diatom species complex. *Journal of Phycology*, 58(5), 643-656.
- Ciftci, O., Chua, P., Kaynar, S. 2022. DNA from Water. In: De Boer H, Verstraete B, Rydmark M, Gravendeel B (eds). *Molecular Identification of Plants: From Sequence to Species*. Advanced Books, 1, e98875.
- Chua, P., Lammers, Y., Ciftci, O. 2022. Metagenomics. In: De Boer H, Verstraete B, Rydmark M, Gravendeel B (eds). *Molecular Identification of Plants: From Sequence to Species*. Advanced Books, 1, e98875.
- Pramanik, D., Ciftci, O., Woudstra, Y. 2022. Transcriptomics. In: De Boer H, Verstraete B, Rydmark M, Gravendeel B (eds). *Molecular Identification of Plants: From Sequence to Species*. Advanced Books, 1, e98875.
- Ciftci, O., Karahan, A., AK Orek, Y., & Kideys, A. E. 2017. First record of the buccaneer anchovy *Encrasicholina punctifer* (Fowler, 1938) (Clupeiformes; Engraulidae) in the Mediterranean Sea, confirmed through DNA Barcoding. *Journal of Applied Ichthyology*, 33(3), 520-523.

# Acknowledgments

I wish to express my sincere appreciation to all individuals who collaborated with me during the research detailed in this thesis. I extend my gratitude to Adrienne Mertens for her generous availability and for providing her expertise on diatom taxonomy. I also wish to acknowledge the substantial contributions and support of Andrew Alverson, as well as the help of Wade Roberts in conducting phylogenetic analyses. I am grateful to David Mann and Rosa Trobajo for their valuable insights and constructive feedback, which significantly enhanced the quality of this work. Navigating an international collaboration amidst the challenges of the global pandemic was made possible due to the patience and support of the individuals mentioned so far. Additionally, I extend my thanks to Bart van de Vijver for introducing me to the case study and granting me access to the exceptional diatom slide collection at Meise Botanic Garden. Recognition is also due to Jako van der Waal and Herman van Dam for providing me with the diatom species distribution data from Dutch waterboards, and to Maarten Schrama for his support in fieldwork preparations. From Naturalis Biodiversity Center, I am truly grateful to Bertie-Joan van Heuven for her guidance and contribution with scanning electron microscopy, and thanks to Marcel Eurlings, Elza Duijm, Frank Stokvis, and Rob Langelaan for their assistance with other experiments. The insightful feedback provided by the members of the Evolutionary Ecology group significantly enriched this research. From Baseclear, I am truly grateful to Danny Duijsings and Walter Piruvano who provided guidance and support during several stages of this work, and I want to thank Erwin Fakkert, Niels Gerritsen, Remy van der Hulst, and Mitchell Laurens for their training and assistance. I extend my thanks to students from several universities of applied sciences who contributed to the studies within this thesis; Iris van Eijk, Nemi Dorst, and Sandrien Vrieswijk. Furthermore, I extend my appreciation to my colleagues Juan Viruel, Dewi Pramanik, Ali May, Vincent Manzanilla, Richa Kusuma Wati, Maria Ariza, Felicitas Mück, and Issa Diop for their enduring friendship. The support of the Ecology and Evolutionary Biology Society of Turkey, which equipped me with the necessary skills and training for a career in science, is greatly appreciated. I want to express my profound appreciation to friends who enriched the past four years with heartfelt discussions and significant moments; Ceren Abacıoğlu, Marcela Probert, Marcel Polling, Sevgi Kaynar, Onur Erk Kavlak, Anıl Özdemir, Gökçen Tek, and Mینenur Küçük. Lastly, I would like to acknowledge the unwavering support and encouragement of my family—my mother Hülya Çiftçi, my father Abdullah Çiftçi, and my sister Ekin Çiftçi. Their constant presence has been a source of inspiration and motivation throughout my journey.

# Curriculum Vitae

Ozan Çiftçi was born on November 6<sup>th</sup>, 1986, in Ankara, Turkey. In 2004, he graduated from Bornova Anatolian High School, a prominent school in Izmir. He started his academic journey in Molecular Biology and Genetics at the Middle East Technical University (METU) in Ankara. During this period, he cultivated a keen interest in ecology and evolutionary biology, which led him to undertake an internship and a B.Sc. project at METU's Limnology Laboratory under the supervision of Prof. Dr. Meryem Beklioğlu.



After earning his B.Sc. degree in 2013, Ozan started his MSc studies at the Institute of Marine Sciences of METU in Mersin, Turkey. His research project centered on the biodiversity of fish and invertebrates in Mersin Bay, in the Eastern Mediterranean. Employing phylogenetic and DNA barcoding techniques, he worked under the supervision of Asst. Prof. Dr. Arzu Karahan. Notably, his M.Sc. thesis documented the first Mediterranean record of an Indo-Pacific anchovy species. Ozan successfully obtained his M.Sc. degree in 2016 and subsequently joined Ankara University's Evolutionary Genetics Laboratory as a researcher. For two years, he focused on developing a local sequence database and data analysis pipelines for fish identification from water samples, and actively participated in several national and international projects.

In 2018, Ozan's journey led him to the Netherlands as a Marie Skłodowska-Curie Ph.D. Fellow in the European Plant.ID network at the Naturalis Biodiversity Center and Leiden University. In his project, he primarily investigated the reproductive history of the bioindicator diatom, *Nitzschia palea*, and evaluated a quantitative method for diatom biomonitoring using genome-scale approaches. These studies were performed under the supervision of Prof. Dr. Barbara Gravendeel and Prof. Dr. Peter M. van Bodegom and resulted in the research described in this thesis. Ozan is currently pursuing his career as a post-doctoral researcher at the Helmholtz Centre Potsdam, Germany, and will continue to focus on microalgal ecology and evolution by applying bioinformatics, genomics, next-generation sequencing, taxonomy, and systematics.