

PREFACE

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This volume contains 12 studies dealing mainly with various aspects of microalgal ecology including planktic, benthic, and metaphytic assemblages of various aquatic habitats and their relations to climate change, environmental constraints, and methodological differences. What is common in these studies is that their authors are all researchers whose scientific careers were inspired by Professor Judit Padisák, one of the most influential phytoplankton ecologists, who turned 70 this year. The authors dedicated their works to Judit, whose life has always been defined by openness, scientific excellence, intellectual generosity, and an unwavering commitment to the advancement of ecology. Her scientific approach has fundamentally been shaped by the recognition that the organization and functioning of microbial assemblages of waters should not differ from those of the terrestrial systems, because the laws of ecology are universally valid regardless of size. Judit has the ability to recognize the essential elements of how the various ecosystems work and thus finds parallels between terrestrial systems and phytoplankton, although these operate at completely different scales of size and time. She boldly applied succession models of terrestrial vegetation to phytoplankton, or the Intermediate Disturbance Hypothesis to understand diversity changes of phytoplankton. She also recognized the importance of functional groups and traits of phytoplankton species in phytoplankton ecology and knew that these not only support the understanding of the functioning of these systems, but can serve as a basis for developing ecological status assessment methods that can be used to quantitatively describe water quality, which is the first step to their preservation.

Beyond her own scientific accomplishment, Judit Padisák has built international collaborations and played a central role in educating and mentoring of future ecologists in various universities on four continents. She supervised almost thirty PhD students from many countries. Her style of mentorship is characterised by encouragement and high standard. These have enabled her mentees to become professionals in their field. Many of them are now leading research groups and departments and play a key role in teaching, research, and practical hydrobiology in their countries.

Judit's public appearances can be found on numerous platforms. Each of these exudes authenticity, backed by more than forty years of research experience and numerous problems that have been experienced and solved.

This special issue of *Studia botanica hungarica* comprises a selection of scientific papers that reflect the breadth and depth of Judit Padisák's influence, from theoretical contributions to applied ecological research. This book is a tribute to a scientist whose career exemplifies the openness, power of curiosity, critical thinking, and to a mentor whose impact lives on in the work of younger generations of scientists.

The authors offer this volume with deep appreciation, for a lifetime of scientific discovery, for the countless students and colleagues Judit has inspired, and for the enduring mark she has left on our understanding of aquatic life.