



Advances in aerobiology for the preservation of human and environmental health: a multidisciplinary approach

Roberto Albertini · Carmen Galán · Bernard Clot

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This special issue of *Aerobiologia* aims to highlight studies presented during the XI International Congress of Aerobiology of the International Association for Aerobiology, which was held in Parma, Italy, in September 2018. Nearly 300 researchers from 43 countries took part in this important quadrennial event.

The theme of the congress was ambitious, but reflects the cornerstone of aerobiology, lying in the words “multidisciplinary approach”. In recent decades, pollen, fungal spores, and allergies were the focus of many aerobiological studies, but many other topics are also important to the discipline. From gene flow through to forensics, whether it be indoors or outdoors, aerobiological processes play an important role in human health, food safety, and the environment.

R. Albertini (✉)
Department of Medicine and Surgery, University of Parma, Parma, Italy
e-mail: roberto.albertini@unipr.it

R. Albertini
Hygiene Unit, University Hospital of Parma, Parma, Italy

C. Galán
Department Botany, Ecology and Plant Physiology,
University of Córdoba, Córdoba, Spain

B. Clot
Federal Office of Meteorology and Climatology,
MeteoSwiss, Payerne, Switzerland

Are we on track to get Aerobiology recognized as a stand-alone discipline? Many researchers around the world practice aerobiology, but, coming from another more traditional discipline, may not consider themselves as aerobiologists; its interdisciplinary nature makes it challenging to consider aerobiology as a single area of research.

Aerobiology covers many topics, sometimes very different and seemingly unrelated to each other, as if they were irreconcilable. If multidisciplinary was considered a weakness in the past, it certainly deserves to be considered a strength, as it is highlighting the originality, modernity and, above all, the usefulness and applicability of aerobiological studies. In fact, we may often realize that what appeared to be irrelevant and different, may in fact be a resource that could be used to improve methods, to deepen our understanding, and to provide new horizons for innovative practical applications. For this, many skills are required.

Not only aerobiologists, but agronomists, allergists, urban designers, botanists, climatologists, engineers, naturalists, hygienists, mathematicians, microbiologists, the military, pharmacists, physicists, phytopathologists, as well as scientific and public institutions, and representatives from the food, agricultural, and pharmaceutical industries, should be stakeholders for aerobiological studies. Close collaboration between different research areas is essential to broaden horizons and stimulate innovation, to improve

the welfare of the population and the environment, as well as to reduce related healthcare and environmental costs.

Only through education, outreach, and mentoring, can Aerobiology have a transformative impact on how we pursue the goals of understanding, managing, and transferring knowledge in a beneficial way. To this end, aerobiologists, as a scientific community, need to improve their ability to communicate and to relate to a wide range of stakeholders, institutions, and end-users.

This special issue reflects the wide diversity that makes up Aerobiology, including articles dealing with many different topics such as traditional sampling

methods and molecular analysis, quality control, forecasting models, immunotherapy, ragweed spread, land management, indoor and outdoor cultural heritage, environmental hygiene in operating theatres.

Before concluding this introduction, we have to mention that new techniques to monitor airborne biological particles in real time are quickly evolving and will soon become the new reality. This is a real breakthrough but simultaneously represents a challenge to our community. One that will surely serve as a strong impetus for aerobiology to go where it has never gone before. But this will be another story.

For now, we wish you happy reading!