

FOREWORD

## Special issue “Deepen knowledge in plant pathology for innovative agroecology”

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This Special Issue of European Journal of Plant Pathology (EJPP) contains papers selected from keynote and oral lectures presented at the 12th EFPP (European Foundation for Plant Pathology) – 10th SFP (French Society for Phytopathology) joint conference held in May 31st – June 2nd, 2017 in Dunkirk-Malolles-Bains, France. The conference gathered 257 participants from 24 different countries and five continents and included two opening lectures, two round tables, 10 keynote lectures, 56 oral and 167 poster presentations (<https://efpp12sfp10.univ-littoral.fr>). Following the most recent EFPP (e.g. Wageningen,

The Netherlands in 2012; Krakow, Poland in 2014) and SFP (Paris, 2012; Colmar, 2015) meetings, the conference consisted of six sessions covering a wide range of fundamental and applied aspects of plant pathology, including taxonomy, epidemiology, diagnostics, plant-microbe interactions and their determinants, plant immunity, and emerging tools of disease management. A joint session focusing on phytobiomes entitled “From plant-microbe interactions to interactions within phytobiomes” was co-organized in collaboration between EFPP, SFP and the American Phytopathological Society (APS).

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In tune with the current plant health and protection issue and the increasing demand for a more sustainable agriculture and healthy food, the scope of the conference focused on agro-ecology, and was entitled “Deepen knowledge in plant pathology for innovative agro-ecology”. Agro-ecology has become today a central approach in many areas around the world, especially in Europe, where several National Action Plans (e.g. Ecophyto Plan in France) have been set up in order to reduce the dependence on conventional pesticides in agricultural systems. Looking for innovative and new sustainable control strategies is thus a challenge that researchers, scientists, agronomists, plant health actors and crop protection industries should overcome. To meet such an objective, a deepened knowledge of the biology of plant pathogens and their interactions with their host and environment are the most crucial prerequisites. The scientific community has today a wide range of powerful tools (e.g. next generation sequencing, genotyping by sequencing, patho-genomics, spectral imaging, artificial leaf surfaces, bio-informatics and epidemiological models, gene editing) that will make research in plant pathology both more innovative and more accurate. Alternative control methods are now suggested by both technology-based tools (e.g. CRISPR-Cas 9, RNA interference, biocontrol tools, agents or products) and agronomy- and ecology-based methods such as varietal resistance, cultivar mixtures, crop rotation and sowing density. The 12th EFPP – 10th SFP con-

ference pointed out the most recent advances in plant pathology linked to these aspects. Nevertheless, despite these recent progresses and highly promising perspectives, several challenges arose from the conference for the future, such as for instance: (i) how to apply knowledge about biodiversity and biotic interactions in practice; (ii) how to define a healthy plant (in terms of risk assessment); (iii) how to deal with large datasets and big data; (iv) how to communicate about plant pathology with the public; and (v) how to teach and train future plant pathologists? However, some recommendations have been made in order to help plant pathologists and scientists to address such questions, such as promoting interdisciplinary approaches and projects, increasing collaborations, sharing knowledge (databases), training students in a holistic way, and making the public aware of plant pathology.

This Special Issue of EJPP includes 14 peer-reviewed papers (six reviews and eight original articles) selected from the six sessions of the conference. They present out latest advances on various topics (biology, genetics, epidemiology, genetics, host-pathogen interactions and innovative and emerging tools of disease management) and pathosystems addressed by the contributors. We hope that the content of this Special Issue will be useful for a wide audience of scientists, researchers, students, academics, agronomists, plant protection industry, as well as practitioners of plant health.