

Tentative Outline (Preliminary Proposal of Thematic Issue)

Special/Thematic Issue for the journal: The Open Agriculture Journal

Title of the Thematic Issue: Durable genetic plant resistance: A key to sustainable pathogen management

Guest Editor's Name: Dr. Nachaat SAKR

• **Scope of the Thematic Issue (Brief introduction / abstract explaining the Thematic Issue):**

Interest in durability of genetic resistance to plant pathogens is increasingly being seen as a vital component in disease control policy. Resistance to plant pathogens exhibits a continual range, from complete resistance to complete susceptibility. Complete resistance is largely shaped by gene-for-gene model and interacted with virulence (the qualitative component of pathogenicity). This type of resistance, though efficient, often displays weak durability. Quantitative resistance leading to a decrease in disease can be based on a few to several genes with partial effects associated to quantitative trait loci (QTLs) and interacted with aggressiveness (the quantitative component of pathogenicity). The effectiveness of plant resistance is likely to reduce over time, due to the evolution of pathogen populations, with an increase in the rate of virulent or highly aggressive isolates. An erosion of qualitative resistance due to a matching increase in pathogen virulence has been commonly reported. Only little experiments have addressed the issue of variations in the aggressiveness of pathogen populations over large time scales, due to the degree of aggressiveness itself and the complex nature of the relationship between evolution of aggressiveness and evolution of virulence. Plant disease severity varies qualitatively and quantitatively depending on the resistance of the host cultivars; it is therefore desirable to understand how the deployment of qualitative or quantitative resistance affects changes of the virulence or aggressiveness which lead to potential resistance erosion.

Keywords: aggressiveness, erosion, plant pathogens, qualitative resistance, quantitative resistance, virulence.

Sub-topics:

The sub-topics to be covered within the issue should be provided:

- Adaptation of plant pathogens to qualitative resistance.
- Adaptation of plant pathogens to quantitative resistance.
- Major genes/ quantitative resistance deployment strategies.

Tentative titles of the articles and list of contributors:

Tentative titles of the articles and list of contributors with their names, designations, addresses and email Addresses should be provided.

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Schedule:

- ✧ Deadline to submit the finalized proposal of Thematic issue: **3 months after subjected approval of preliminary proposal**
- ✧ Complete Thematic issue submission deadline: 01, December 2021

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