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Editorial

Occurrence and Functions of Endophytic Fungi in Crop Species

Rosario Nicoletti [1,2]

[1] Council for Agricultural Research and Economics, Research Centre for Olive, Fruit and Citrus Crops, 81100 Caserta, Italy; rosario.nicoletti@crea.gov.it
[2] Department of Agricultural Sciences, University of Naples 'Federico II', 80055 Portici, Italy

After having been initially boosted by the general aim to exploit biodiversity in natural environments, research on endophytic microorganisms has recently started considering their occurrence in crop species. Many studies have shown that these microbial associates may improve plant fitness through various biological mechanisms of interaction, and have a major impact on plant growth and productive parameters. Besides the relevance of interesting case studies disclosing the effects/properties of single strains/species, a more comprehensive ecological approach should consider that endophytes more effectively play these functional roles in the form of interacting consortia. For this reason, it is important to organize, analyse, and implement the available information on the occurrence and functions of microbes that are part of the crop biocoenosis as a fundamental condition to define possible translational applications in view of enhancing crop performances.

A series of reviews have been recently delivered in literature dealing with the occurrence of endophytic fungi in cultivated plants, considering general aspects [1–4], specific crops [5–7], or implications in crop management [8–12]. This Special Issue is aimed at providing a contribution through making available a collection of papers reviewing the state of the art concerning the occurrence and properties of endophytic fungi associated with crop species or other plants of economic importance. It includes reviews concerning citrus [13], tomato [14], the Amaryllidaceae family [15], and medicinal plants, such as sages [16] and species in the Asteraceae family [17]. Another paper considers aspects pertaining to the trade of ornamentals, following concerns advanced by the European Food Safety Authority for the circulation of pathogens in asymptomatic plant materials [18]. This topic is also the thread of a review dedicated to one of such pathogens, *Lasiodiplodia theobromae*, which, besides concerns of its potential spread via the plant trade, has recently been spreading to temperate areas as a consequence of global warming [19]. More directly considering fungi whose ecological role is exploited in the integrated pest management of crops, the endophytic occurrence of species in the closely related genera *Lecanicillium* and *Akanthomyces* is examined in [20]. Finally, two case studies are proposed touching aspects related to the possible relevance of endophytic fungi in crops, such as mycotoxin production [21] and nutritional interactions concerning fertilizers [22].

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