

Natural compounds: A sustainable alternative to the phytopathogens control

Jiménez-Reyes M.F.

Carrasco H.

Olea A.F.

Silva-Moreno E.

Fungi are the primary infectious agents in plants causing significant economic losses in agroindustry. Traditionally, these pathogens have been treated with different synthetic fungicides such as hydroxianilides, anilinopyrimidines, and azoles, to name a few. However, the indiscriminate use of these chemicals has increased fungi resistance in plants. Natural products have been researched as a control, and an alternative to these synthetic fungicides since they are not harmful to health and contribute to the environment caring. This review describes plants extracts, essential oils, and active compounds or secondary metabolites as antifungal agents both, in vitro and in vivo. Active compounds have been recently described as the best candidates for the control of phytopathogenic fungi. When metabolized by plants, these compounds concentrations rely on the environmental conditions and pathogens incidence. However, one issue regarding the direct application of these preformed compounds in plants touch upon their low persistence in the environment, and their even lower bioavailability than synthetic fungicides. Hence the challenge is to develop useful formulations based on natural products to increase the compounds solubility facilitating thus their application in the field while maintaining their properties. © 2019 Sociedad Chilena de Quimica. All rights reserved.

Antifungal

Essential oil

Fungus

Natural control

Phytopathogen

Plant extract

Secondary metabolite