

Antifungal activity of eugenol derivatives against *Botrytis cinerea*

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Botrytis cinerea is a worldwide spread fungus that causes the grey mold disease, which is considered the most important factor in postharvest losses in fresh fruit crops. Consequently, the control of gray mold is a matter of current and relevant interest for agricultural industries. In this work, a series of phenylpropanoids derived from eugenol were synthesized and characterized. Their effects on the mycelial growth of a virulent and multi-resistant isolate of *B. cinerea* (PN2) have been evaluated and IC₅₀ values for the most active compounds range between 31-95 ppm. The antifungal activity exhibited by these compounds is strongly related to their chemical structure, i.e., increasing activity has been obtained by isomerization of the double bond or introduction of a nitro group on the aromatic ring. Based on the relationship between the fungicide activities and chemical structure, a mechanism of action is proposed. Finally, the activity of these compounds is higher than that reported for the commercial fungicide BC-1000 that is currently employed to combat this disease. Thus, our results suggest that these compounds are potential candidates to be used in the design of new and effective control with inspired natural compounds of this pathogen. © 2019 by the authors.

Botrytis cinerea

Chemical fungicides

Eugenol

Mycelial growth

Reactive oxygen species

Resistant isolate

antifungal agent

eugenol

fungicide

analogs and derivatives

Botrytis

chemical structure

chemistry

drug effect

microbial sensitivity test

microbiology

phenotype

plant disease

Antifungal Agents

Botrytis

Eugenol

Fungicides, Industrial

Microbial Sensitivity Tests

Molecular Structure

Phenotype

Plant Diseases