

Effect of drimenol and synthetic derivatives on growth and germination of *Botrytis cinerea*: Evaluation of possible mechanism of action

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The aim of this study was to determine the antifungal activity of Drimenol (1) and its synthetic derivatives, nordrimenone (2), drimenyl acetate (3), and drimenyl-epoxy-acetate (4), and to establish a possible mechanism of action for drimenol. For that, the effect of each compound on mycelial growth of *Botrytis cinerea* was assessed. Our results showed that compounds 1, 2, 3 and 4 are able to affect *Botrytis cinerea* growth with EC50 values of 80, 92, 80 and 314 ppm, respectively. These values suggest that the activity of these compounds is mainly determined by presence of the double bond between carbons 7 and 8 of the drimane ring. In addition, germination of *B. cinerea* in presence of 40 and 80 ppm of drimenol is reduced almost to a half of the control value. Finally, in order to elucidate a possible mechanism by which drimenol is affecting *B. cinerea*, the determination of membrane integrity, reactive oxygen species production and gene expression studies of specific genes were performed. © 2016 Elsevier Inc.

Antifungal activity

Botrytis cinerea

Drimenol

antifungal agent

drimenol

fungicide

reactive oxygen metabolite

terpene

Botrytis

chemistry

drug effects

fungus spore

metabolism

Antifungal Agents

Botrytis

Fungicides, Industrial

Reactive Oxygen Species

Spores, Fungal

Terpenes