

# Synthesis and in Vitro antifungal activity against *Botrytis cinerea* of geranylated phenols and their phenyl acetate derivatives

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The inhibitory effects on the mycelial growth of plant pathogen *Botrytis cinerea* have been evaluated for a series of geranylphenols substituted with one, two and three methoxy groups in the aromatic ring. The results show that the antifungal activity depends on the structure of the geranylphenols, increasing from 40% to 90% by increasing the number of methoxy groups. On the other hand, the acetylation of the -OH group induces a change of activity that depends on the number of methoxy groups. The biological activity of digeranyl derivatives is lower than that exhibited by the respective monogeranyl compound. All tested geranylphenols have been synthesized by direct coupling of geraniol and the respective phenol. The effect of solvent on yields and product distribution is discussed. For monomethoxyphenols the reaction gives better yields when acetonitrile is used as a solvent and AgNO<sub>3</sub> is used as a secondary catalyst. However, for di- and trimethoxyphenols the reaction proceeds only in dioxane. © 2015 by the authors; licensee MDPI, Basel, Switzerland.

Antifungal activity

*Botrytis cinerea*

Geranylphenols

Green chemistry

Synthesis

2 (3,7 dimethylocta 2,6 dienyl) 4 methoxyphenol

2 (3,7 dimethylocta 2,6 dienyl) 4 methoxyphenyl acetate

2 (3,7 dimethylocta 2,6 dienyl) 4,5 dimethoxyphenol

2 (3,7 dimethylocta 2,6 dienyl) 4,5 dimethoxyphenyl acetate

2 (3,7 dimethylocta 2,6 dienyl) 6 methoxyphenyl acetate

3 (3,7 dimethylocta 2,6 dien 1 yl) 2,4,6 trimethoxyphenol

3 (3,7 dimethylocta 2,6 dienyl) 2,4,6 trimethoxyphenyl acetate

3,5 bis(3,7 dimethylocta 2,6 dien 1 yl) 2,4,6 trimethoxyphenol

5 (3,7 dimethylocta 2,6 dienyl) 2,4 dimethoxyphenol

captan

geraniol

guaiacol

phenylacetic acid derivative

phloroglucinol

unclassified drug

acetic acid derivative

fungicide

geraniol

phenol derivative

phenyl acetate

terpene

acetylation

antifungal activity

Article

Botrytis cinerea

catalyst

controlled study

growth inhibition

mycelial growth

nonhuman

proton nuclear magnetic resonance

thin layer chromatography

Botrytis

chemistry

drug effects

green chemistry

growth, development and aging

mycelium

synthesis

Botryotinia fuckeliana

Acetates

Botrytis

Fungicides, Industrial

Green Chemistry Technology

Mycelium

Phenols

Terpenes