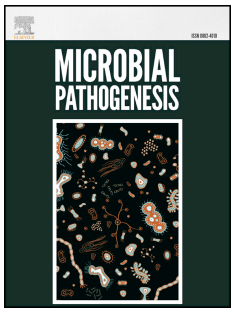
Accepted Manuscript



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PII: S0882-4010(16)30776-8

DOI: 10.1016/j.micpath.2017.02.014

Reference: YMPAT 2123

To appear in: *Microbial Pathogenesis*

Received Date: 11 November 2016

Revised Date: 7 February 2017

Accepted Date: 8 February 2017

Please cite this article as: Ayoub F, Ben oujji N, Chebli B, Ayoub M, Hafidi A, Salghi R, Jodeh S, Antifungal effectiveness of fungicide and peroxyacetic acid mixture on the growth of *Botrytis cinerea*, *Microbial Pathogenesis* (2017), doi: 10.1016/j.micpath.2017.02.014.

Antifungal effectiveness of fungicide and peroxyacetic acid mixture on the growth of *Botrytis cinerea*

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Abstract

In the attempt to reduce the negative impacts of chemical pesticides on environment and consumer's health, a new plant treatment practice minimizing the amount of pesticides needed during pests and diseases treatments has been developed. Our approach is based on combining the biocide effects of fungicide with the peroxyacetic acid (PAA) one. In this paper, we focused on the *in vitro* study of the antifungal activity of this combination against *Botrytis cinerea*, the most redoubtable threat of tomatoes plants in Morocco. First, different concentrations of a peroxyacetic acid product (PERACLEAN®5) and two commercially available fungicides SWITCH and SIGNUM were tested separately for their inhibitory effects on the mycelial growth and spores germination of *B. cinerea*. 100% inhibition of fungal growth was achieved using 16.77 and 14.47 µg/ml of SIGNUM and SWITCH respectively and 1.5% of PERACLEAN®5. When combined with 0.5% of the peroxyacetic acid mixture (PERACLEAN®5), the pesticides 100% effective concentrations decreased to 0.5µg/ml for both pesticides. Hence, this approach allowed us to suppress the pathogen while minimizing the amounts of applied fungicides by more than 95%.

Keywords: *Botrytis cinerea*, tomatoes, peroxyacetic acid, PERACLEAN®5, SIGNUM, SWITCH.

1. Introduction

In Morocco, tomatoes represent an important branch of the Moroccan economy, with an annual production of approximately 1.3 million tons [1] and being the major exported