

## Biological Control of *Botrytis cinerea* in Residues and Flowers of Rose (*Rosa hybrida*)

Joseli da Silva Tatagiba,<sup>1</sup> Luiz Antonio Maffia,<sup>1</sup> Roberto W. Barreto,<sup>1</sup>  
Acelino C. Alfenas<sup>1</sup> and John C. Sutton<sup>2</sup>

Microbial isolates from living petals, petal residues and leaf residues of rose, and from laboratory collections, were evaluated for control of *Botrytis cinerea* in rose. In leaf residues artificially infested with *B. cinerea*, isolates of the filamentous fungi *Gliocladium roseum*, FR136 (unidentified) and *Trichoderma inhamatum* reduced sporulation of the pathogen by >90%, other filamentous fungi were 25–90% effective, and those of yeasts and bacteria were <50% effective. In artificially inoculated petal residues, no microbe reduced sporulation of *B. cinerea* by >75%, but isolates of *Cladosporium oxysporum* and four yeasts were 51–75% effective, and three filamentous fungi, eight yeasts and *Bacillus subtilis* isolates were 26–50% effective. Isolates of *T. inhamatum*, *C. oxysporum* and *G. roseum* performed best against *B. cinerea* among isolates evaluated in leaf residues naturally infested with the pathogen and indigenous microorganisms. Totals of ten isolates of filamentous fungi (including *C. oxysporum* and *C. cladosporioides*), two of yeasts and five of *Bacillus subtilis* completely prevented lesion production by *B. cinerea* in detached petals, and a further six isolates of filamentous fungi (including *G. roseum*) and six yeasts were 90–99% effective. Isolates of *C. oxysporum*, *C. cladosporioides* and *B. subtilis*, the most effective microorganisms against *B. cinerea* in flower buds, reduced number of lesions in the range of 42–65% compared with 59–89% for a standard fungicide (vinclozolin). It is suggested that application of leading antagonists to living rose leaves and flowers should optimize control of inoculum production by *B. cinerea* when the tissues die. Optimal biocontrol of lesion production in flower buds requires a better understanding of the microenvironment of petals.

KEY WORDS: Rose; *Botrytis cinerea*; biological control.

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<sup>1</sup>Depto de Fitopatologia, Universidade Federal de Viçosa, 36570 Viçosa, Minas Gerais, Brazil [Fax: +31-8992240; e-mail: lmaffia@mail.ufv.br].

<sup>2</sup>Dept. of Environmental Biology, University of Guelph, Guelph, ON, Canada N1G 2W1.