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Plant innate immunity in strawberry induced by pathogen-associated molecular pattern (PAMP)

José Abramo Marchese¹; Vanessa Nateline Tomazeli²; Silvia Scarioto¹; Marcos Vily Paladini¹; Emanueli Pereira da Silva¹; Lucas Vinícius Dallacorte¹

¹UTFPR – Universidade Tecnológica Federal do Paraná, Campus Pato Branco. Via do Conhecimento s/n, Km 01, CEP: 85503-390, Pato Branco - PR, abramo@utfpr.edu.br, silviascariotto@yahoo.com.br, marcospaladini@gmail.com, eps.emanueli@gmail.com, lucasdallacorte@alunos.utfpr.edu.br

²Rio Grande do Sul State Secretariat for the Environment and Infrastructure, 90020-020 Porto Alegre, RS, Brazil, vanetomazeli@hotmail.com

ABSTRACT

Gray mold caused by *Botrytis cinerea* is an important disease in strawberries. This fungus causes significant economic losses since it attacks plants and fruits. In this context, this work aimed to evaluate the effectiveness of Acibenzolar-S-methyl (ASM) and Harpin protein in pre- and post-harvest as inducers of resistance in strawberries to *B. cinerea*. Strawberry plants (*Fragaria x ananassa*) from ‘Aromas’ and ‘Camarosa’ cultivars were grown in a greenhouse and evaluated in a laboratory. Two elicitors: four doses of Harpin [commercial product ProAct™ (0, 100, 200 and 300 mg L⁻¹, 1% a.i.)] and five doses of ASM [commercial product Bion® (0, 100, 200, 300, and 400 mg L⁻¹, 50% a.i.)] in pre- and post-harvest applications were assessed. Yield parameters of strawberry, *B. cinerea* incidence and injured area in fruit, fruit firmness, CO₂ assimilation rate, and phenylalanine ammonia-lyase (PAL) activity were analyzed. Elicitors application in pre- and post-harvest conditions promoted a decrease of *B. cinerea* incidence and injured area in strawberry fruits. The results suggest that Harpin and ASM treatment show a significant impact on strawberry fruit disease, presenting a potential use to increase post-harvest storage. The control may be associated with the PAL induction, responsible for inducing defense responses. Harpin and ASM represent a promising alternative to synthetic fungicides for *B. cinerea* control during post-harvest storage.

KEY WORDS: *Fragaria x ananassa* Duch; Acibenzolar-S-methyl; SAR; Hypersensitivity responses; MAMPs

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