

Evaluation of Extracellular Proteins Released from *Rubus fruticosus* Cells during a Hypersensitive Response

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The first signal induced during plant-pathogen interactions is the hypersensitive response (HR), a mechanism characterized by cell death in the infection site that prevents pathogen proliferation. Here we characterized the extracellular proteins released to the extracellular medium as well as the modifications of monosaccharide composition in cell wall during HR in *Rubus fruticosus* cells. The cells were elicited with 1 $\mu\text{mol/L}$ salicylic acid (AS), Methyl jasmonate (MeJA) or F-I during 1 h or after decantation, for analysis of the supernatant (fraction E). They were subsequently disrupted and cell wall fraction was submitted to quantitative monosaccharide analysis. The main constituents of neutral sugars in the cell wall of *R. fruticosus* were glucose (55-61%), arabinose (22-29%) and mannose (13.8-15%). Minor constituents were fucose (0.65-1.2%), galactose (0.5-0.8%), xylose (0.5-0.8%) and rhamnose (~0.5%). AS decreased the rhamnose and fucose concentrations. F-I both decreased the percentage of mannose and glucose and increased rhamnose and fucose. MeJA, in turn, increased the percentage of rhamnose, xylose and galactose. The time-course curves for β -D-galactosidase and β -D-glucosidase activations were most effective for MeJA (300 and 230%, respectively), while F-I and AS inhibited β -D-galactosidase. Also, F-I and AS increased the galacturonase and chitinase activities. By contrast, MeJA inhibited galacturonase and chitinase activities in the fraction E. The data suggest that F-I and AS modulate the defense responses of plants through a mechanism unrelated to the MeJA via.

Key words: *Rubus fruticosus*, hypersensitive response
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