

## Resistance Induction in Tomato Plants Under Biotic Stresse by *Xanthomonas campestris* pv. *vesicatoria*

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Plant resistance to pathogens can be constitutively expressed (passive) and/or relies on defenses that are induced after infection (active). Active defense can develop an increased resistance to future attacks, since plants produce metabolites which help to protect itself, such as antimicrobial peptides (AMPs). This phenomenon is called resistance induction. The purpose was to evaluate the answer of tomato plants (*Solanum lycopersicum*) after inoculation by the pathogen *Xanthomonas campestris* pv. *vesicatoria*. Tomato plants were inoculated with the pathogen by spreading in three different periods, and harvested with 25 days of age, getting four groups (treatments): non-inoculated plants (control) and plants harvested 1, 7, and 14-days after inoculation. The disease severity was evaluated by observing damages in the plants. Leaves were extracted with Tris-HCl containing protease inhibitors. The extracts were centrifuged and the supernatants called Soluble Extracts (SE). Precipitates were extracted in LiCl, centrifuged, and the supernatant designated Cell Wall Extract (CWE). The increasing in activities of indicative enzymes (peroxidase, phenylalanine ammonia lyase, lipoxygenases,  $\beta$ -1,3-glucanases and chitinases) in SE confirmed the resistance induction, corroborated by the differential proteins synthesis observed among treatments. CWE and SE were separated by electrophoresis (12% and 16.5%). Each CWE and SE was fractioned by ammonium sulfate (30-75% sat.) and ultrafiltration (10 and 1kDa). Peptide fractions (1-10 kDa) of CWE and SE were tested against *Ralstonia solanacearum* and *Clavibacter michiganensis* subsp. *michiganensis* the presence of constitutive active molecules in CWE and induced ones in SE, probably AMPs, capable of inhibiting microbial growth.

Keywords: antimicrobial peptides, indicative enzymes, resistance induction, tomato plants

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