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FITNESS COST ASSOCIATED WITH INDUCED STATE ELICITED BY TWO ENDOPHYTIC BACILLI IN TOMATO PLANTS AGAINST BACTERIAL SPECK<sup>1</sup> / Custo adaptativo associado ao estado de indução eliciado por dois bacilos endofíticos em plantas de tomate contra a pinta bacteriana. R. LANNA-FILHO<sup>2</sup>; R.M. SOUZA<sup>3</sup>. <sup>2</sup>Departamento de Fitossanidade, Universidade Federal do Rio Grande do Sul, Porto Alegre, 91540-000, Brazil / <sup>3</sup>Departamento de Fitopatologia, Universidade Federal de Lavras, Lavras, 37200-000, Brazil. E-mail: lanna.filho@ufrgs.br

Endophytic bacteria of the genus *Bacillus* may elicit defense responses in plants against various pathogens by leading the host to the induced state. However, studies with these microbes do not report the negative impact of the priming effect on plant development. This study reports the ability of the endophytic bacteria *Bacillus pumilus* and *Bacillus amyloliquefaciens* to induce resistance in tomato plants against bacterial speck, as well as the negative impacts of the induced state on plant growth parameters such as plant height and plant dry weight. Studies to determine the fitness cost and enzymatic activity were performed in tomato plants grown from seeds that were immersed in cell suspension of the two *Bacillus* species, ASM (0.05 g/L of water) or water. To evaluate the cost of induced defense, plants were harvested weekly (1–5 weeks) and growth parameters such as plant height and total plant dry weight were evaluated. In addition, plants were inoculated with a cell suspension of *Pseudomonas syringae* pv. *tomato* NS4 in the third week after germination. To evaluate the activity of POX, PPO and PAL, plants were harvested after 0.5, 1, 2, 4, 5, 6 and 7 days. In another trial, plants were inoculated with the bacterial pathogen on the fourth day and harvested after 4, 5, 6 and 7 days. The results showed that plants treated with *Bacillus* species had a negative impact on growth. In addition, the plants showed a significant increase of the enzymatic activity in their tissues. This proves that endophytic bacteria caused a fitness cost to the plants.

**Key words:** *Bacillus amyloliquefaciens*; *Bacillus pumilus*; *Pseudomonas syringae* pv. *tomato*; Phenylalanine ammonia-lyase; Polyphenol oxidase

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