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ANTAGONISM OF *Bacillus subtilis* L49 STRAIN AGAINST PLANT PATHOGENIC FUNGI: SCANNING ELECTRON MICROSCOPY STUDY ON HYPHAE MORPHOLOGICAL ALTERATIONS¹ / Antagonismo de *Bacillus subtilis* cepa L49 contra fungos fitopatogênicos: estudo de alterações morfológicas miceliais por microscopia eletrônica de varredura. P. P. SANCHES¹, J. P. BAPTISTA¹, A. HIGASHI¹, R. T. CHIDEROLI¹, U. P. PEREIRA¹, L. E. A. M. LESCANO², L. S. MATSUMOTO², U. B. ALBINO³, A. G. DE OLIVEIRA¹, M. I. BALBIPEÑA¹. ¹State University of Londrina (UEL) / ²State University of North Paraná (UENP) / ³Federal University of Pará (UFPA). E-mail: mariabalbi@uel.br

Bacillus species are currently known as biocontrol agents of many fungal diseases because they produce biologically active compounds against soil-borne and post-harvest pathogens. This study investigates the potential of the L49 bacterial strain against plants pathogenic fungi. L49 strain was isolated from a cave in Altamira city (Pará State) and was identified as *Bacillus subtilis* based on phylogenetic analysis of 16S rDNA gene sequence. *B. subtilis* L49 strain was tested against the plant pathogens *Fusarium solani* (FS), *Macrophomina phaseolina* (MP) and *Botrytis cinerea* (BC) by evaluating fungal growth inhibition through the dual culture assay and well diffusion with cell-free culture filtrate. The results showed inhibition of mycelial growth of 43%, 29% and 33% in the double culture assay and 30%, 45% and 35% in the well diffusion method for FS, MP and BC, respectively. Morphological changes of plant pathogenic fungi mycelia at the zone inhibited by *B. subtilis* L49 strain were evaluated using scanning electron microscopy. Morphological alterations of hyphae, such as wilting, exopolysaccharide matrix reduction and reduced hyphae growth compared to control were detected. These data indicate that L49 strain of *B. subtilis* produce fungitoxic metabolites against important plant pathogenic fungi and denotes its potential as a biocontrol agent of plant diseases.

Key words: *Bacillus subtilis*; Biological control; Scanning electron microscopy.

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