

Endophytic *Streptomyces* spp. from Alcatrazes Island as a biocontrol agents against phytopathogenic fungi

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The demand for biological control products is growing among which stand-out products to control plant diseases caused by fungi. The genus *Streptomyces* is a prolific producer of secondary metabolites with antibiotic, antifungal, and antiworm actions, therefore becoming a promising candidate for biological control agents. The objective of this work was to evaluate the potential of five endophytic *Streptomyces* spp. strains (A3, A20, A27a, A27b, and A31) from Alcatrazes Island on the São Paulo coast, against the biocontrol of phytopathogens fungus *Fusarium oxysporium cubensis* (FP01), *Aspergillus niger* (FP02) and *Phomopsis sojae* (FP03), through antagonistic bioassays. All microorganisms were grown in a Potato Dextrose Agar (PDA) medium for 5 days before starting the bioassay. The bioassay was carried out in 90x15mm Petri dishes in PDA medium at 24°C±1. For the inoculation of *Streptomyces* spp., a 2 cm streak was made at 1 cm from the edge of the plate. After 48 hours, a disc of PDA medium (1 cm ø) containing the fungal isolate was inoculated at the opposite end, 1 cm from the edge. For the control treatment, only the phytopathogen was inoculated. The inhibition was calculated with the formula: (diameter control–diameter treatment)/diameter control, after 6 days of phytopathogens inoculation. The isolate A3 was active against FP01, FP02, and FP03 with 2.5%, 2.8%, and 8.2% inhibition respectively. The A20 strain has 2,5% inhibition of FP01 phytopathogen. The strains A20, A27a, A27b, and A31 have 0% inhibition of the growth of the phytopathogens FP02 and FP03, in addition, the phytopathogens mycelial has grown over the *Streptomyces* spp. colonies. The FP01 results were not conclusive for the A27a, A27b, and A31 strains. The strain A3 was active against the phytopathogens that were tested. The other strains did not demonstrate potential as biocontrol products against FP02 and FP03 fungus. Therefore, the experiment will be repeated for the conclusive results.

Key words: biological control; secondary metabolites; *Fusarium oxysporium cubensis*; *Aspergillus niger*; *Phomopsis virgíniae*

Streptomyces spp. endofíticas proveniente das Ilha de Alcatrazes como agentes biocontroladores contra fungos fitopatógenos

A demanda por produtos biológicos está crescente, sendo que produtos para controle de doenças de plantas causadas por fungos vem se destacando. O objetivo foi avaliar o potencial de cinco cepas endofíticas de *Streptomyces* spp. provenientes da ilha de Alcatrazes-SP contra fungos fitopatógenos através de bioensaio antagonico. O bioensaio foi conduzido em BDA sobre placas de Petri 90x15, as cepas *Streptomyces* spp. foram inoculadas 48hrs antes que os fitopatógenos, em lados opostos e foram incubadas por 6 dias a 24°C±1. A cepa A3 apresentou taxa de inibição entre 2,5 e 8,2% contra os fitopatógenos demonstrando seu potencial como biocontroladora.

Palavras-chave: controle biológico; metabólitos secundários; *Fusarium oxysporium cubensis*; *Aspergillus niger*; *Phomopsis virgíniae*

Acknowledge: This study was financed in part by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brasil (CAPES) – Finance Code 001; FAPESP (process n° 2019/17721-9); and Programa Unificado de Bolsas (PUB).