# Accepted Manuscript


Title: Biological control of the soft rot bacterium *Pectobacterium carotovorum* by *Bacillus amyloliquefaciens* strain Ar10 producing glycolipid-like compounds

Authors: Sana Azaiez, Imen Ben Slimene, Ines Karkouch, Rym Essid, Selim Jallouli, Naceur Djebali, Salem Elkahoui, Ferid Limam, Olfa Tabbene

PII: S0944-5013(18)30534-2
DOI: https://doi.org/10.1016/j.micres.2018.08.013
Reference: MICRES 26208

To appear in:

Received date: 4-5-2018
Revised date: 17-8-2018
Accepted date: 28-8-2018

Please cite this article as: Azaiez S, Slimene IB, Karkouch I, Essid R, Jallouli S, Djebali N, Elkahoui S, Limam F, Tabbene O, Biological control of the soft rot bacterium *Pectobacterium carotovorum* by *Bacillus amyloliquefaciens* strain Ar10 producing glycolipid-like compounds, *Microbiological Research* (2018), https://doi.org/10.1016/j.micres.2018.08.013

# Biological control of the soft rot bacterium *Pectobacterium carotovorum* by *Bacillus amyloliquefaciens* strain Ar10 producing glycolipid-like compounds.

Sana Azaiez[1,2], Imen Ben Slimene[1], Ines Karkouch[1], Rym Essid[1], Selim Jallouli[1], Naceur Djebali[1], Salem Elkahoui[1], Ferid Limam[1], Olfa Tabbene[1]

[1]Laboratoire des Substances Bioactives, Centre de Biotechnologie de Borj Cedria, BP-901, 2050 Hammam-lif, Tunisia

[2]Université Tunis El Manar, Campus Universitaire Farhat Hached, BP-94 Rommana, 1068 Tunis, Tunisia

***Correspondence to**: Olfa Tabbene

Laboratory of Bioactive Substances, Center of Biotechnology, Ecopark of Borj Cedria, Hammam-Lif, Tunisia
Email: tabb_olfa@yahoo.fr
Phone/Fax: (00216) 79 32 57 28

## ABSTRACT

Four hundred and fifty bacteria were evaluated for antagonistic activity against bacterial soft rot of potato caused by *Pectobacterium carotovorum* sp strain II16. A strain Ar10 exhibiting potent antagonist activity has been identified as *Bacillus amyloliquefaciens* on the basis of biochemical and molecular characterization. Cell free supernatant showed a broad spectrum of antibacterial activity against human and phytopathogenic bacteria in the range of 10-60 AU / mL. Incubation of *P. carotovorum* cells with increasing concentrations of the antibacterial compound showed a killing rate of 94.8 and 96% at MIC and 2xMIC respectively. In addition, the antibacterial agent did not exert haemolytic activity at the active concentration and has been preliminary characterized by TLC and GC-MS as a glycolipid compound.

Treatment of potato tubers with strain Ar10 for 72h significantly reduced the severity of disease symptoms (100 and 85.05% reduction of necrosis deep / area and weight loss respectively). The same levels in disease symptoms severity was also recorded following treatment of potato tubers