



Pseudomonas putida strain B2017 produced as technical grade active ingredient controls fungal and bacterial crop diseases

Clara Oliver, Iker Hernández, Marta Caminal, José M. Lara & Carolina Fernández

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Futureco Bioscience S.A., Barcelona, Spain

ABSTRACT



Biological control is emerging as a feasible alternative to chemical pesticides for the protection of crop plants. *Pseudomonas putida* shows enormous potential as biological control agent (BCA) not only because it is well reported to control a number of relevant crop diseases, but also because it has a short generation time, colonises plants and their environment, exerts its BCA activity through a range of different mechanisms, and promotes plant growth. Despite of these advantages no plant protection product based on *P. putida* is available in the market so far. In the present manuscript we describe the production of *P. putida* B2017, a novel biofungicide and biobactericide strain, at increasing scale – from laboratory (Erlenmeyer flasks) to pilot scale (125-L bioreactors) – as part of development process of a new commercial plant protection product. The technical grade active ingredient (TGAI) produced, regardless of the production scale, is as effective as the chemical reference against *Fusarium oxysporum* f.sp. *radicis-lycopersici* in tomato, *Rhizoctonia solani* in potato, *Sclerotinia sclerotiorum* in lettuce and *Pectobacterium atrosepticum* in potato. The TGAI titration obtained in 125-L bioreactors is high enough as to warrant effective TGAI concentration in a putative end-product even after typical viability losses expected during formulation. In summary, we hereby show that *P. putida* B2017 is a promising BCA not only because its efficacy against plant pathogens, but also because it can be produce at large scale.

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KEYWORDS

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CONTACT Carolina Fernández  carolina@futurecobioscience.com  Futureco Bioscience S.A., Avinguda del Cadi 23, Olèrdola (Barcelona) 08799, Spain

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