



THE CHALLENGES OF INTRODUCING A NEW BIOFUNGICIDE TO THE MARKET

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Introduction. The scientific literature contains many reports documenting the isolation and antagonist-testing of microorganisms with the potential for biological control in agriculture as an alternative to use of chemicals; however, very few have addressed the aspects involved in the long process that occurs before a potential strain, found and tested in the laboratory, can reach commercialization [1,2]. *Fungifree AB*[®] is a biofungicide that was recently introduced to the Mexican market for the biological control of mango anthracnose as a result of the development of a project research between two Mexican academic institutions and the participation of a spin-off company, as well as an international commercializing company. The objective of this presentation is to describe a multi-institutional, multi-disciplinary effort to develop a biological control agent with remarkable technical characteristics and performance for the control of mango anthracnose caused by *Colletotrichum gloeosporioides*, which is the most economically significant disease of mango fruit throughout the world.

Development of the project (Figure 1). A group of bacterial and fungal isolates were selected on the basis on mycelial growth inhibition of *C. gloeosporioides* [3,4]. In addition to the scientific/technological development, other aspects were also crucial for the success of the project, included: a) a technology-oriented spin-off company founded in 2008 that scaled-up the production of the biofungicide; b) the registration of the product with the Mexican agricultural and health authorities; and c) the establishment of a collaboration with a commercial company that is widely distributing the product in Mexico and will do the same in other countries in the future.

Product characteristics and achievements of the project. *Fungifree AB*[®] is a biofungicide in a presentation of wettable powder containing viable spores of *Bacillus subtilis* strain 83 and has a long shelf life (more than two years) at room temperature. It is effective for controlling *C. gloeosporioides* at levels superior to those of conventional chemical fungicides, with zero chemical residues. The biofungicide also was found to result in the production of 2-3 times more high-quality fruits compared to a conventional chemical treatment. Additionally, the fruits were found to have superior characteristics in terms of hardness. The successful introduction of *Fungifree AB*[®] to the Mexican market has been the result of a wide variety of factors, including the remarkable technical characteristics of the product, mainly in terms of its efficacy and long shelf life; the high scientific level of the participants; the participation of the mango producers and exporters in the testing of the product at a commercial level; the founding of a spin-off company, in which high-level scientists participated and the interest and commitment of a big commercialization company with tradition and prestige in the Mexican and Latin American markets. Nowadays, *Fungifree AB*[®] is in the process of being registered for its use on a variety of other crops, including avocado, papaya and citrus fruits.

Conclusions. After 12 years of work in Mexican academic institutions and the participation of a spin-off company, as well as an international commercializing company, a very effective biofungicide was introduced to the Mexican market in 2012.

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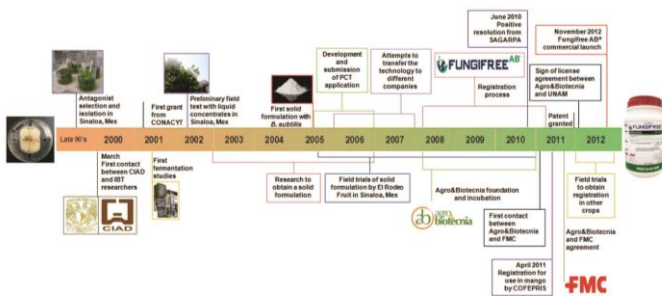


Fig.1 Fungifree AB[®] development [4].