

## **Biological control of rice blast pathogen, *Pyricularia oryzae* by *Bacillus* spp.**

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Rice blast, caused by *Pyricularia oryzae*, is one of the most important rice diseases worldwide. Each year it causes globally 30% yield losses, threatening thus global food security. Rice blast management relies heavily on fungicides, however, due to more and more restrictive legislation and increasing problems with fungicide resistance, a very limited spectrum of chemical control means is available. Therefore, there is an urgent need to search for and develop new efficient control strategies.

Biological control is nowadays well accepted alternative to control plant pathogens in agriculture and among different biological control agents (BCA), *Bacillus* spp. have been among the most successful microorganisms in disease management. Here, two strains of *Bacillus* spp., BCA20 and BCA21, were isolated as plate contaminants inhibiting fungal growth. Their activity was tested by dual-culture assay against 15 strains of *Pyricularia oryzae*. BCA20 showed overall higher activity, it inhibited the radial growth of the tested strains on average by 85% and the mycelium growth area by almost 52%. The activity of BCA21 was approximately 20% lower than that of BCA20. The multi-locus gene identification based on eight genes (16S, *ilvD*, *glpF*, *pta*, *purH*, *pycA*, *rpoD* and *tpiA*) identified BCA20 as *B. subtilis* and BCA21 as *B. halotolerans*. The activity of the two strains on the germination and growth of rice plants as well as their biocontrol activity *in vivo* is being investigated.