



NovaUCD

Technology Transfer Opportunity

Novel Anti-fungal Bacterial Strains

OPPORTUNITY:

Novel anti-fungal bacterial strains.

Description of Technology:

Four novel bacterial strains with demonstrated anti-fungal properties have been isolated and characterised. The strains promise to be effective bio-control agents for the treatment of crops to alleviate the detrimental effects of blight and head blight disease.

Value Proposition:

Seedling blight and head blight attack small-grain cereals such as wheat and barley causing yield loss and decreased quality of the crop. The disease is caused by the fungus *Fusarium*, which produces harmful mycotoxins in the infected plant. Mycotoxin contamination of the cereal poses a serious hazard for food safety. About 15% of crop worldwide is lost annually due to fungal pathogens resulting in major financial losses for farmers and the agricultural industry. The UN's FAO has estimated that 25% of the world's food crops are affected by mycotoxins.

Chemical control of *Fusarium*- caused diseases is generally considered inconsistent and not sustainable since *Fusarium* strains have been found to develop resistance to these fungicides. In contrast, our isolated anti-fungal strains offer an environmentally friendly and more sustainable option in the treatment of blight diseases.

The efficacy of these isolates has been assessed under glasshouse conditions and in field experiments. Pre-pathogen treatment with two of these strains significantly reduced the mycotoxin level in grain by up to 78% under field conditions. All four strains significantly reduced *Fusarium* head blight- associated yield loss. The field trial data correlated well with the results obtained from glasshouse experiments.

In view of the drawbacks of commercial fungicides the anti-fungal strains offer a promising solution to reduce the economical losses and health risks associated with *Fusarium* infections. The biological control of blight disease involving these strains can be an eco-friendly and cost effective component of an integrated crop management programme.

Market:

Agricultural Industry, Biocontrol and Biopesticides Industry

Inventor:

Dr Fiona Doohan and Mr Mojibur Khan, UCD School of Biology and Environmental Science.

Publication:

Khan RK, et al. (2006) "Biological Control of *Fusarium* Seedling Blight Disease of Wheat and Barley", *Phytopathology* 96:386-394.

Status:

The anti-fungal strains were successfully tested in field trials. A priority patent application was filed on November 28, 2007.

Opportunity Sought:

Available for licensing.

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