

Leca-VIR



Investigation into the potential role of fungal viruses in the dry bubble disease of cultivated mushroom – towards biological pest management

Mushroom production is an important part of agriculture in numerous countries but dry bubble disease - caused by the mould *Lecanicillium fungicola* - results in significant crop losses and economic problems worldwide. Integrated pest management - aiming to reduce unnecessary pesticide use to safeguard human health as well as the environment - is suggested as a potential solution for disease control, and certain mycoviruses (viruses of fungi) are already used successfully in different plant production systems. The general objective of our project is studying the potential of mycoviruses for the biological control of dry bubble disease. We will look for mycoviruses in a collection of *L. fungicola* isolates from various countries, and the detected viruses will be purified and characterized. Those related with reduced vigour (hypovirulence) will be introduced into virus-free *L. fungicola* and button mushroom. The mechanisms of hypovirulence will be examined, and the effect of hypovirulence-linked viruses on *L. fungicola* and button mushroom will be tested in cultivation experiments. The combination of existing and newly acquired knowledge in the fields of virology and mushroom science is expected to help mushroom growers reduce yield losses by environment-friendly pest management strategies, promoting ecological farming in mushroom cultivation.

Project Duration: 36 months (18M Okayama University + 18M Teagasc)

Collaborating Institutions: Teagasc, Ireland
Okayama University, Japan
Maynooth University, Ireland

Project Team:

<u>RL2025 Fellow</u>	<u>Teagasc Supervisor</u>	<u>Outgoing Phase Supervisor</u>	<u>Third Supervisor</u>
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