

Wild Strains of *Agaricus bisporus*: A Source of Tolerance to Dry Bubble Disease

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Agaricus bisporus is susceptible to various pests and diseases. Dry bubble, caused by *Verticillium fungicola*, is currently the most serious disease and is distributed worldwide. All cultivars are susceptible and the pathogen develops resistance towards the very few fungicides admitted. Breeding for resistance is necessary and wild strains of *A. bisporus* are putative sources of tolerance. We present results on the susceptibility (severity of the disease, ability to develop the various symptoms) of some wild strains of the INRA-CTC and the PPO MRU collections.

A commercial strain revealed significant variability in aggressiveness among isolates of *V. fungicola* var. *fungicola* responsible for the disease in Europe at present. Isolate VCTC, which induced severe symptoms revealed interesting tolerance among five wild *A. bisporus* strains and hybrids between wild strains. A cross test was performed with two cultivars and seven wild strains of *A. bisporus* contaminated with five isolates, two of var. *fungicola* and three of var. *aleophilum*, the latter responsible for the disease in USA and Canada. The wild strains screened were far more tolerant (3-9% of diseased mushrooms) than the cultivars (20-22%). All the strains were more susceptible to the var. *aleophilum* than to the var. *fungicola* isolates.

These experiments showed that very tolerant material exists in collection and can be used as parents to breed for resistance. The greater susceptibility of *A. bisporus* to *V. fungicola* var. *aleophilum* must be taken into consideration in breeding programmes, this variety being present in North America and being isolated in Europe in the past.