

Title High incidence of *Fusarium avenaceum* (Nectriaceae, *Gibberella*) and Moniliformin in apples with wet core rot symptoms

Author H.-J. Schroers, J.L. Sørensen, U. Thrane, K.F. Nielsen, M. Z̄erjav, A. Munda and J. Frank.

Citation Journal of Plant Pathology Volume 90 (2, Supplement) August 2008, Book of Abstract, 9th International Congress of Plant Pathology, August 24-29, 2008 Torino, Italy, . 507 pages.

Keywords apple; moniliformin; wet core rot

Abstract

In 2004-2006, fungi causing wet apple core rot (WACR) in various cultivars were inventoried in Slovene orchards. In 2730 mature Gloster apples, the full yield of 21 trees in 2004, ca 10% of apples developed white, rose or reddish mycelium in the core and a wet, light-brown rot extending destructively into the surrounding apple flesh. Almost consistently, *Fusarium avenaceum* (Fa) was isolated. A less exhaustive screening of apples in various Gloster, Golden Delicious, Fuji and Jona Gold orchards confirmed Fa as the predominant agent of WACR. However, infection rate of Golden Delicious apples was less than 2%. Fa strains grown on yeast extract sucrose agar formed, among others, the metabolites antibiotic Y, two chlamydosporols, aurofusarin, rubrofusarin and several enniatines. These were identified qualitatively by HPLC equipped with diode array detection, collecting UV spectra (HPLC-DAD/UV) of metabolites. In 9 of 15 apples naturally infected with Fa and showing WACR, 2000-9000 ppb moniliformin was detected by HPLCDAD/ UV analysis; the other samples had 150–900 ppb moniliformin. Artificial inoculations of rot-free apples with representative strains of Fa indicated that moniliformin is formed after 3–7 days in small amounts (measured by LC/MS) and can reach levels of 2000-4500 ppb (measured by HPLC-DAD/UV) within 3 weeks. Considering that apples containing WACR can be removed from the production line only with great difficulty, these results indicate that Fa can be a mycotoxin-related threat to human health. Mycotoxin analyses were done at the BioCentrum–DTU, Technical University of Denmark