

**Title** Culturable bacterial and *Trichoderma* biofilms isolated from sweet potato as it relates to biological control of rhizopus soft rot.

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#### **Abstract**

Culturable biofilms were isolated on nutrient yeast dextrose agar (NYDA) and potato dextrose agar (PDA) by direct impression (storage root impression culture plate method) and washings from (storage roots disk washate method) from 'Jewel' sweetpotato. Root impressions revealed the presence of amorphous biofilmlike particles, and culturable bacteria, and *Trichoderma* biofilms, within 24 h on PDA and NYDA; within 12 days different colony morphologies were identified using stereo microscope images digitized by a Kodak Microscopy Documentation System. The colony morphotypes termed culturable biofilm morphotypes, when streaked on NYDA contained a mixture of solitary and biofilm bacteria, and grew on both media. Bacterial biofilms from washings were identified mainly as *Bacillus cereus*. Antagonists of the microflora present on the root surfaces, played an important role in suppression the growth of *Rhizopus stolonifer*. For example, simultaneous growth of *R. stolonifer* and bacterial biofilms in vitro, suppressed and deteriorated aerial hyphal growth of *R. stolonifer* on NYDA. Suppression of aerial hyphal growth and disintegration of *R. stolonifer* by *Trichoderma* isolates were also apparent on PDA. Results revealed that suppression of aerial hyphal growth of *R. stolonifer* occurred as a result of mycoparasitism of *Trichoderma* biofilm isolates. Antagonistic biological control microorganisms involved in reducing the inoculum potential of *R. stolonifer*, appeared to achieve better control with a mixture of several antagonists or types of antagonist, than with a single one.