

ISOLATION OF BACTERIA ANTAGONISTIC TO *PSEUDOMONAS TOLAASII*, THE CAUSATIVE AGENT OF BROWN BLOTCH DISEASE

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ABSTRACT

The aim of this study was to isolate mushroom pathogenic *Pseudomonas tolaasii* antagonistic bacteria, and to investigate the inhibiting processes. *P. tolaasii* is a well known mushroom pathogen bacterium, which attacks oyster and button mushroom. The caused symptoms could be present as brown blotches on the caps, or browning and yellowing of the whole sporocarps. The toxin molecules, produced by the bacterium, disrupt the cellular membrane of the fungal cells via pore formation. The exclusion of the whole genus from the growing processes is difficult, because some species play key role in the healthy cap formation. Potential way of suppression is the artificially generated competition for the nutrient sources. In this case the production of enzymes and siderophores is important. Another opportunity to lowering the losses during the infection: the neutralization of the produced tolaasin toxin. This could prevent the browning and yellowing of the caps caused by *P. tolaasii*. WLIP (*White Line Inducing Particle*) produced by *P. 'reactans'* is a well known tolaasin blocking molecule; it could form insoluble precipitate with the toxin. Some members of the *Acinetobacter*, *Bacillus*, *Pedobacter* and *Sphingobacterium* genera are well known toxin neutralizing species. The background of this phenomenon is still unknown. Examination of produced inhibitors depending on the molecule type (protein-analysis, thin layer and high pressure chromatography) could help us in the understanding of these processes. In this study, we isolated different bacteria having strong competition abilities. The best non-mushroom pathogenic strains were identified by partial 16S rDNA sequence analysis.

Keywords: mushroom, brown blotch, WLIP, inhibitors, *Pseudomonas tolaasii*, tolaasin toxin