

Antagonistic effect of chitin-degrading microfungi on thick-shelled pig helminth eggs

¹Kiran Kumar Katakam, ¹S Thapa, ²NV Meyling, ³A Dalsgaard, ¹SM Thamsborg, ¹AK Roepstorff
¹Danish Centre for Experimental Parasitology, Department of Veterinary Disease Biology, ²Section of Zoology, Department of Agriculture and Ecology, ³Section for Microbiology, Department of Veterinary Disease Biology, University of Copenhagen, Denmark

The rising demand for pigs produced in organic farming systems, which require access to outdoor areas and associated increased risk of gastrointestinal nematode infections, is creating growing interest in alternative control strategies. Also development of anthelmintic resistance due to extensive use of anthelmintics is a concern in intensive pig production. Use of chitin-degrading microfungi is one of the options. Extensive research has been conducted on biological control of plant pathogenic nematodes using such fungi, and some fungal species are commercially available for plant protection. In contrast, there are only limited laboratory studies conducted on eggs from nematodes which are animal parasites. The aim of present study is to investigate the antagonistic effect of chitin-degrading microfungi on thick-shelled pig helminth eggs (i.e. *Ascaris suum* and *Trichuris suis*) both in the laboratory as well as in the field. We have performed a pilot study of the ovicidal effect of *Paecilomyces lilacinus* alone and in combination with chitin supplement on *A. suum* eggs over 4 weeks in 2% water agar. Within 1 week more than 90% of the eggs were hatched in both cases within the Petri dish as compared to controls, indicating that the fungus is capable of degrading the chitin wall so the larvae are becoming free. Soon we will proceed for full-fledged study with 2 fungal species (*P. lilacinus* and *Pochonia chlamydosporia*) which were proven to have ovicidal activity against nematode eggs. This will be done in the laboratory using soil samples amended with *A. suum* eggs, under semi-natural (pasture plot) conditions and finally on heavily contaminated pastures.