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Publication date:
2011

Document Version
Early version, also known as pre-print

Abstract for "Biofilms in Nosocomial Fungal Infections", Paris, France, 31 jan – 1 feb 2011

Suppression of *Aspergillus* by *Pseudomonas aeruginosa*

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Objectives:
Cystic fibrosis patients are commonly infected by *Pseudomonas aeruginosa*, but Aspergilli are also frequently isolated. Our aim was to examine the possible interaction between *P. aeruginosa* and different *Aspergillus.*

Methods:
A suspension of 10^6 fungal spores/ml was streaked onto WATM culture plates. After 24 hours incubation at 37 °C, a *P. aeruginosa* overnight culture diluted to 10^8 CFU/ml was streaked out perpendicular to the fungal streak. The plates were incubated at 37 °C for 5 days, examined and plugs were extracted for HPLC and LC-DAD-MS analysis.

Results:
P. aeruginosa PAO1 suppressed growth of *A. fumigatus, A. niger, A. flavus, A. oryzae, A. terreus* and *E. nidulans.* HPLC and LC-DAD-MS results showed an increase in phenazine-1-carboxylic acid and phenazine-1-carboxamide production by *P. aeruginosa* in the contact area of *Aspergillus*. Different quinolones were also identified, here among 2-heptyl-3-hydroxy-4-quinolone (PQS). An unidentified green pseudomonas compound was also observed. Interestingly the *P. aeruginosa* mutant *rpoN* was unable to suppress *A. fumigatus*, but suppressed *A. flavus, A. oryzae* and *A. niger*. However several other *P. aeruginosa* mutants suppressed *A. fumigatus* including *flif, pilA, lasR, PVDA, PQSC* and *rhlA* mutants indicating that phenazines may be involved in the suppressed growth of *A. fumigatus.* All *pseudomonas* mutants suppressed *A. oryzae, A. niger* and *A. flavus*.

Conclusions:
An increase in phenazine production by *P. aeruginosa* may contribute to the ability of *P. aeruginosa* to suppress different Aspergilli. Especially phenazines seem to play a role, while other factors such as motility, rhamnolipid and alginate production do not seem to be involved.