

TNO test AgPolymer

Introduction

AgPolymer has developed a cheese coating with silver-ions. TNO has performed a test to investigate the antimicrobial properties of this coating.

Method

AgPolymer has made available a sample to TNO. As a reference TNO has investigated a cheese coating with 50 ppm natamycin and a coating with another antimicrobial. These three coating materials were tested.

Two tests were performed:

1 Yeast inactivation test in the coating

The coatings are inoculated with yeasts at a concentration of 10^4 per gram. At time = 0, 4 and 7 days samples are investigated for the number of yeasts.

Objective: test potential inactivation of the antimicrobial system of the coating.

2 Mould inhibition test on agar

Malt extract agar (MEA) is prepared and poured into Petri-dishes. On top 0.1 ml of mould inoculum is spread. Then 2 gram coating is spread on top. The plates are incubated at 25°C for 7 days. Mould growth is visually checked.

The test is performed using three moulds: *Penicillium discolor*, *Aspergillus versicolor* and *Aspergillus niger*.

Results

1 Yeast inactivation test in the coating

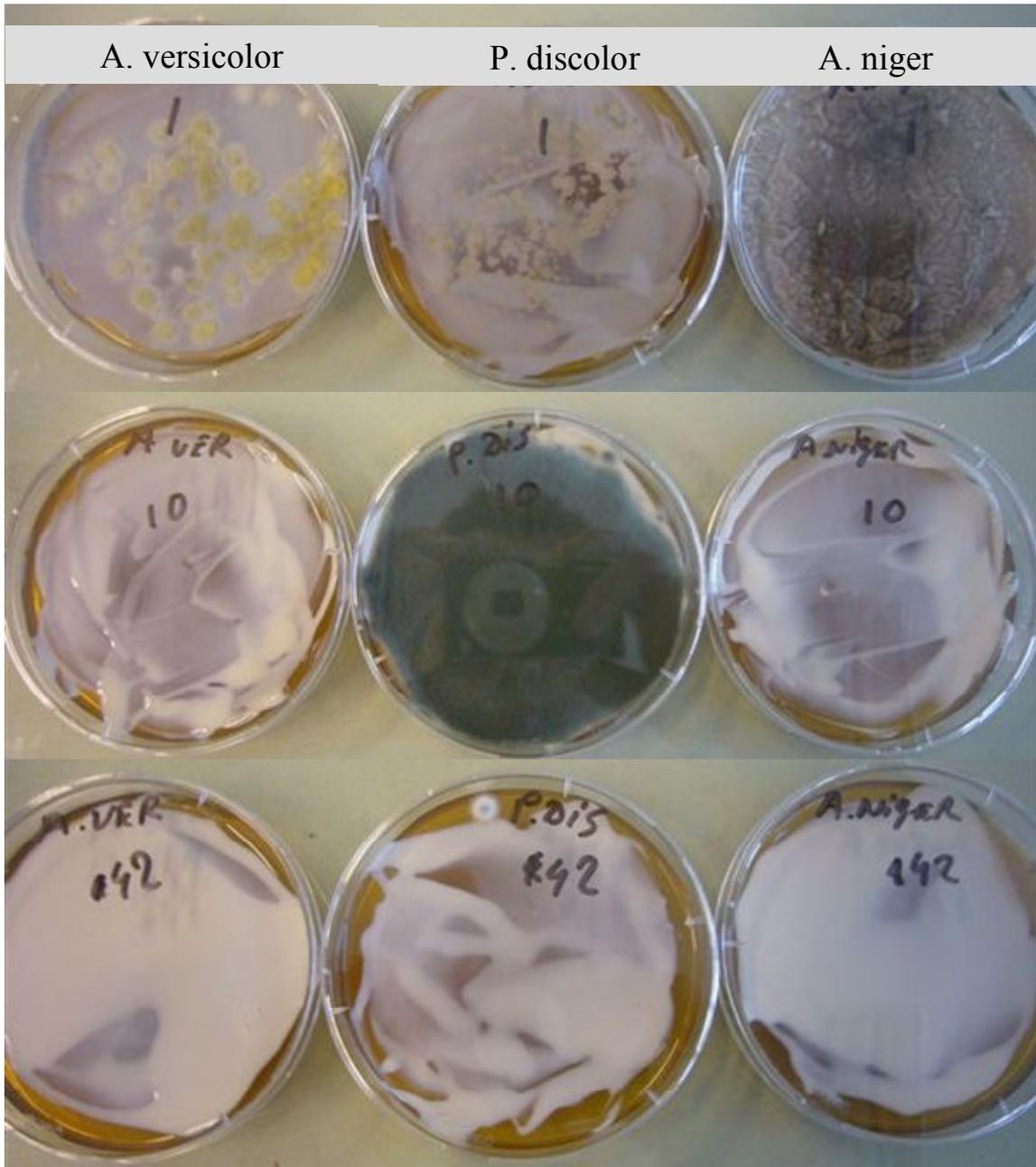
- In all samples tested the number of yeasts did not significantly change. After 4 and 7 days storage, the number of yeasts was still approximately 10^4 per gram.

2 Mould inhibition test on agar (see also pictures on next page)

- The coating with another antimicrobial showed moderate growth of all three moulds.
- The coating with 50 ppm natamycin showed no growth of *A. versicolor* and *A. niger*, but showed excessive growth of *P. discolor*. It is known that *P. discolor* is relatively resistant to natamycin.
- The coating of AgPolymer showed no growth of all three moulds tested (only one colony outside the coating).

Conclusion

- The coating of AgPolymer was effective to inhibit moulds in an agar test.
- Yeasts inoculated into the coating were inactivated.



First row control coating with antimicrobial: growth of all moulds
 Second row coating with 50 ppm natamycin: growth of P. discolor
 Third row AgPolymer coating: no mould growth