

ORIGINAL ARTICLE

Effect of ethanol on growth of *Chrysonilia sitophila* ('the red bread mould') and *Hyphopichia burtonii* ('the chalky mould') in sliced bread

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Significance and Impact of the Study: This study shows that ethanol could represent an effective barrier to prevent spoilage of bakery products by associated moulds such as *Chrysonilia sitophila* and *Hyphopichia burtonii*, whose growth on packed and sliced bread was inhibited at very low (0.8%) or medium (2.0%) ethanol concentrations, respectively. The results obtained represent a fundamental point of reference for the bakery industries, as they can apply them in the productive practice to avoid spoilage by *C. sitophila* and *H. burtonii* on their products.

Keywords

bread, *Chrysonilia sitophila*, ethanol, *Hyphopichia burtonii*, temperature.

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Abstract

Contamination of food industrial environments and recontamination of finished products by *Chrysonilia sitophila* and *Hyphopichia burtonii* have long represented serious problems for the bakery industries. As one of the most common ways to slow down or avoid fungal spoilage on bakery products is the use of ethanol, in the present work the effect of this substance has been assessed on growth of two of the most frequently occurring associated moulds, *C. sitophila* and *H. burtonii*, by means of tests on both synthetic media and sliced bread. Test on synthetic media: *H. burtonii* was less markedly affected in lag-phase duration and radial growth rates by the addition of ethanol to DG18 and the reduction in incubation temperature than *C. sitophila* that failed to grow at the highest concentrations of ethanol tested (2.0 and 4.0% at 15°C; 4.0% at 25°C). Test on sliced bread: ethanol proved to be effective to prevent spoilage by *C. sitophila* even at the lowest concentration tested (0.8%, w/w), while higher concentrations (2.0%, w/w) were needed to prevent spoilage by *H. burtonii*.