

**Title** Intraspecific variability of growth and patulin production of 79 *Penicillium expansum* isolates at two temperatures

**Author** Daiana Garcia, Antonio J. Ramos, Vicente Sanchis and Sonia Marín

**Citation** International Journal of Food Microbiology, Volume 151, Issue 2, 2 December 2011, Pages 195-200

**Keywords** *Penicillium expansum*; Patulin; Intraspecific variability; Growth mould; Mycotoxin production

### **Abstract**

*Penicillium expansum* is the main species responsible for patulin production in apples and pears. Generally, fruit is stored at suboptimal conditions for mould growth and this situation could influence on the intra-species variability in both capability for growth and mycotoxin production. The aim of this research was to assess the impact of suboptimal environmental conditions on the intra-specific variability of *P. expansum* growth and patulin production using seventy nine isolates of this mould. Petri dishes with Apple Concentrate Agar Medium (ACAM) were inoculated centrally and incubated at two temperatures, one near optimal (20 °C) and the other representative of suboptimal cold storage (1 °C). For each condition, 10 Petri dishes were inoculated, and colony growth and patulin production was measured over time. The Kruskal–Wallis test revealed significant differences among growth rate ( $\mu$ ) and lag phase ( $\lambda$ ) within the seventy nine assayed isolates. Coefficients of variation revealed a wider dispersion of  $\mu$  (mm/day) and  $\lambda$  (days) at 1 °C compared with 20 °C. There were significant differences ( $p < 0.05$ ) among patulin levels (ng/mm<sup>2</sup>) for the different conditions, values being lower at the lower temperature. Coefficients of variation revealed a wider dispersion of mycotoxin production at 1 °C. In order to address the strain variability in growth initiation and prove the well-established notion of reducing patulin production in foods by preventing fungal growth, a greater number of strains should be included.