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Temperature, water activity and pH during conidia production affect the physiological state and germination time of Penicillium species.

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Abstract

Conidial germination and mycelial growth are generally studied with conidia produced under optimal conditions to increase conidial yield. Nonetheless, the physiological state of such conidia most likely differs from those involved in spoilage of naturally contaminated food. The present study aimed at investigating the impact of temperature, pH and water activity (a_w) during production of conidia on the germination parameters and compatible solutes of conidia of *Penicillium roqueforti* and *Penicillium expansum*. Low temperature (5 °C) and reduced a_w (0.900 a_w) during sporulation significantly reduced conidial germination times whereas the pH of the sporulation medium only had a slight effect at the tested values (2.5, 8.0). Conidia of *P. roqueforti* produced at 5 °C germinated up to 45 h earlier than those produced at 20 °C. Conidia of *P. roqueforti* and *P. expansum* produced at 0.900 a_w germinated respectively up to