

Reference

261

Influence of culture medium and temperature in the growth and sporulation of *Penicillium expansum*

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Abstract

Microorganisms require nutrients as a source of energy and certain environmental conditions in order to grow and reproduce. In the environment, microbes have adapted to the habitats most suitable for their needs. However, in laboratory these requirements must be met by a culture medium¹.

In the present work, mycelia growth and early spore formation of *Penicillium expansum* (MUM 02.14) at 22 °C and 27 °C, in Potato Dextrose Agar (PDA) and CZAPEK-Dox Agar (CZ) media, were evaluated. Both media were prepared according to indications set by the manufacturers (PDA – *BD Difco*TM, and CZ – *Oxoid Ltd.*), autoclaved at 121 °C for 15 min, and poured in Petri dishes. Twelve plates were prepared: 6 with PDA and 6 with CZ medium. All of them were inoculated with 40 µl of a spore suspension containing 7.55×10^7 spores/ml. Six plates (3 PDA and 3 CZ) were incubated at room temperature (22 °C), while the remaining were grown at 27 °C. Growth was assessed every day during eight days and the results were expressed in millimetres of colony diameter per hour. Sporulation was determined by counting in a Neubauer chamber after suspending the spores in 5 ml of 0.1% w/v Tween 80 solution.

Statistical analysis of the data revealed a significant influence of the temperature (at 95% confidence level) on *P. expansum* mycelia growth. Nevertheless, at the same set of temperature there was no difference between both media. On the other hand, the sporulation results showed statistically significant differences when varying both the culture medium and temperature, with CZ being the less suitable medium for *P. expansum* sporulation at both temperatures. PDA medium gave the best sporulation results at 22 °C (29.16×10^7 spores/ml), which allowed us to conclude that such conditions are the most feasible ones for a rapid growth and sporulation of *P. expansum*.

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