How to maximize the production of macroconidia.

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Background

Macroconidia are needed in quantity for a variety of purposes, including transformation experiments. (At one time conidia were available commercially in gram quantities for use in isolating nucleases!) Efforts have been made to define conditions that favor conidiation, both in wild type and in sparsely conidiating mutants. Variables include physical and chemical substrate, humidity, light, aeration, and temperature.

Procedures

Significant increases in yield were obtained with wild type, *cr-1*, and *smco-7* when a 0.5g cotton cube was centered in a shallow layer of solid minimal medium in a 100 ml flask (1.5% agar, 1.5% sucrose) (Kana-Uchi and Murayama 1996). Inoculum was placed on the surface of the medium but not on the cotton. After 7 days growth at room temperature, 30 ml of water was added and a spatula was used to squeeze the cotton cube and release conidia into suspension.

Koski and Hedman (1971) used similar medium in flasks. These were incubated in the dark at 34°C for 64 hours, then exposed to light at 24°C for various periods before harvesting, filtering, and plating on sorbose. Maximum count of viable conidia was obtained for flasks exposed to light for 24 hours.

Barratt (1963) described a procedure modified from Wainwright (1959) that involves incubating conidiating cultures in large Fernbach flasks aerated with a gentle stream of sterile humidified air. Conidia were harvested using a 0.1% Tween 80 solution.

When smaller quantities of conidia are required, the most convenient source may be agar slants in 150 mm culture tubes. Yields are greater when the slant is blunt rather than elongated (D. Newmeyer, personal communication). Mycelial fragments are conveniently removed from conidial suspensions by using cotton-plugged upside-down volumetric pipettes (Newmeyer 1990).

References

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