TECHNICAL NOTES

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Synchronous induction and development of ascogonia.

Of the several kinds of differentiated cells produced by euascomycetes such as N. crassa the ascogonium is perhaps the most singular. And yet, this coil of cells has rarely been described, much less studied, in this species (See review by G.Turian, 1978 in Vol. III The Filamentous Fungi, eds. Smith and Berry). A reason for this relative neglect may simply be technical difficulties. Under the usual cultural conditions these coils appear rather late in the development of a colony, often under or in a dense mat of vegetative hyphae and conidiophores, and over a time period of several days.

To overcome these difficulties the following technique was devised. The first step is to reduce the density of growth in the colony through the use of a water-2% agar medium. Next, once the colony has matured (45 days), a nutrient supplement is added locally to certain areas of the colony. This results in a localized proliferation of hyphae that differentiate ascogonia more or less synchronously.

The details of the technique are as follows: A wild-type strain of either mating-type is inoculated centrally on a layer of the water-2% agarmedium (25 ml) in a 9 cm petri plate. During 4-5 days of incubation at 25°C the colony produces mostly some widely scattered protoperithecia (Bistis, 1981 Mycologia 73: 959-975). If now, l-4 blocks (5x5x0.6 mn) of SC agar-medium (the nutrient supplement) are placed directly on the surface of the colony (1 cm from the edge), a localized proliferation of new, narrow-gauge hyphae occurs within 24 hr. These will grow around, within and on the surface of the individual agar blocks. Within the next 6 hr several dozen ascogonia will develop as branches of the hyphae that are on the surface of the block. Also, since this ascogonium-producing hyphal system is relatively sparse and limited to the surface (no aerial branches), the view is unobstructed. · · · Department of Botany, Drew University, Madison, New Jersey 07940.