Nonconidiation in the new homothallic species, Neurospora terricola

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Abstract
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gical examination of material from such a cross fixed shortly after transfer to 30° revealed, in one particularly favourable preparation, irregular numbers of chromosomes segregating to the poles and the presence of laggards at late anaphase II. Possibly as a result of temperature shock, chromosome segregation was abnormal; the chromosome tended to become scattered and spores were delimited around the scattered chromosomal material.

Single random ascospore isolates were made from the control cross at 25°; a wild-type recombinant, used as protoperithecial parent, and a double mutant, used a conidial parent, were selected for a further batch of crosses. Transfers from 25° to 30° were made when the first wave of ascal meioses commenced. The results were similar to the previous experiments (Table I).

The phenomena reported above are under further investigation. --Genetics Laboratory, Department of Botany, University of Bristol.


Gochenaur and Backus (Mycologia 54: 555-562) recently isolated from Wisconsin soil a new eight-spored species of Neurospora which they named Neurospora terricola (WSF 5000). Several interesting features of this new species were described, but true homothallism, previously unknown in Neurospora, is the characteristic having most promise for genetic studies. A number of standard Neurospora techniques would be unusable in future genetic studies with N. terricola, however, because this organism produces no conidia. We have therefore made preliminary attempts, using a transfer of WSF 5000 obtained from the American Type Culture Collection, to promote conidiation with various media and to induce conidiating mutants with UV irradiation. The results to date have indicated marked stability of the nonconidiation trait.

The following four solidified media were tried: Fries; Westergaard-Mitchell; bacto-peptone; and malt, peptone and yeast. The latter two media were developed by Frost (NN 111: 1962) specifically to enhance Neurospora conidiation. No conidiation was obtained on any of these media, but bacto-peptone gave heaviest mycelial growth and was therefore used to culture mycelia for irradiation purposes.

Irradiation was employed in two ways. Both methods involved the irradiation of suspensions of mycelial fragments, followed by plating on bacto-peptone to score for conidiation. In the first method, however, the mycelia were always obtained from stock cultures which had not been previously irradiated. The second method differed in that mycelia were irradiated, plated and scored, then harvested from the plates and reirradiated. Various treatment times up to fourteen minutes, just short of 100 per cent kill, were used. Despite several attempts with both methods, growth on the post-irradiation plates was consistently nonconidial. One might surmise that further efforts will yet produce conidiation in N. terricola, however, in view of the occurrence of a number of nonconidiating (fluffy) mutants in the normally conidiating species, N. crassa. Any mutations to ability to produce conidia occurring in our experiments might reasonably have been masked by heterokaryosis. Consequently, the treatment of ascospores instead of mycelial fragments, followed by sorbose plating, might prove to be a more fruitful approach in future trials. (Mr. Page was a member of the Nat. Sci. Foundation's Research Participancy for College Teachers Summer, 1963). --Department of Bacteriology, University of Georgia, Athens, Georgia.

Hsu, K.S. A modifier of the morphological mutant scumbo in Neurospora crassa.

The morphological mutant sc (scumbo 5801) was incorporated into the linkage-testers LTIA and LT2a as a centromere marker for linkage group III (Perkins 1959, Genetics). In crosses made for linkage detection where either one of the testers was used as one of the parents, two different phenotypes of sc could be recognized in the progeny. One type grew more vigorously, and was closer to, but easily distinguishable from, the wild-type phenotype. The other gave more restricted growth, which resembled the phenotypic expression of the tester. There was no difficulty in classifying these two types on solid medium, especially if scoring was early. The presence or absence of a modifier linked to the gene pan-l (5531) in group IV seemed to be responsible for the dual expressions of sc, as indicated in Table I.