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Abstract

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Howe, H. B., Jr. and J. E. Page. Nonconidiation in the new homothallic species, Neurospora terricola.

Gochenaour 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 1:11. 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.