Amylose in Neurospora.

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Abstract
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Neurospora is known to contain glycogen, but no reports indicate the presence of amylose (linear starch) even though Wescodyne stains the mycelia blue-black. Since Wescodyne contains iodine and a blue-black response with iodine is a positive test for starch, we stained Neurospora with iodine solution (0.2% I₂·2.0% KI). As a blue-black stain iodine salicylate, 1 N NaOH, or boiling water, all of which will dissolve starch from algae and higher plants. None of these solubilized Neurospora starch.

Earlier work (McCacken 1974 Plant Physiol. 54:414) showed the existence of an amylose precipitating factor in fungi. This factor has now been isolated from Neurospora and characterized (unpublished results). In our attempts to extract starch, we found that the blue-black staining material co-precipitated with the amylose precipitating factor. This factor binds only to amylose and not to amylepectin, glycogen, cellulose, dextran, inulin, or a variety of simple sugars. Moreover, in this case the iodine stain was blue. Thus we conclude that Neurospora does indeed contain starch in the form of amylose. Furthermore, since the blue stain is associated with cell walls, this amylose may be a cell wall component. *Department of Biological Sciences, Illinois state University, Normal, Illinois 61761.


DNA homologies of ribosomal RNA genes of Neurospora species.

Ribosomal RNA genes (rDNAs) of Neurospora crassa contain DNA sequences which code for 17S, 5.8S, and 26S rRNAs, in addition to internal and external spacers (Free, Rice, and Metzenberg 1979 J. Bacte. 137:1219). As has been reported for many eukaryotes, the DNA sequences which code for 17S, 5.8S, and 26S rRNAs in Neurospora species are probably conserved. While the internal and external spacer regions are probably variable sequences. Extensive electron microscopical studies (Schibler et al. 1975 J. Molec. Biol. 94:503) of 45S precursor rRNA of several cold and warm-blooded animals confirm that spacer regions vary extensively from species to species.

It was desirable to know whether such differences in rDNA sequences exist between Neurospora species. Any such difference should be detectable using standard procedures for DNA homology studies (Dutta 1976 Mycologia 68:388). rDNA sequences were isolated from N. crassa mycelial cells using the procedure described previously (Chattopadhyay et al. 1972 Proc. Natl. Acad. Sci. 69:3256). The purified rDNA was H-labeled by nick translation and reassocciated with total DNA isolated from the heterothallic species N. crassa and from three homothallic...