

Growth of ropy mutants on glycerol and acetate

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Abstract

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Recent studies in our laboratory have indicated the presence of a gene on chromosome II which controls glycerol utilization (*glp*) and conidial morphology (Denor and Courtright 1975 Abst. Ann. Mtg. Am. Soc. Microbiol. 1975: 111). Since the morphological appearance of this mutant resembles that of some of the ropy mutants, an attempt was made to determine whether or not any of the ropy mutants have growth characteristics on glycerol or acetate medium similar to those of *glp*. Growth tests were performed by measuring the mycelial mass after growth in minimal liquid medium or by measuring the initial growth rate on medium solidified with 0.5% agarose.

The growth of ropy-1, 3, 4, 7, and 9 is limited on glycerol medium (Table I), suggesting that these mutants may be defective with regard to one or both of the inducible enzymes necessary for glycerol utilization in *N. crassa* (Denor and Courtright 1974 FEBS Letters 48: 314). However, examination of glycerokinase and glycerol 3-phosphate dehydrogenase in cell-free extracts of those mutants giving the least growth on glycerol indicated that the amounts of both of these enzyme activities were normal. This finding would appear to rule out the possibility that any of these ropy genes control the synthesis of these two enzymes. However, as based on the growth properties, it seems possible that these genes may control other aspects of the metabolism of glycolytic intermediates. It is interesting to note that with the exception of ropy-1 and ropy-4, all ropy mutants with decreased growth yields on glycerol are known to be located on chromosome II. Lastly, the decreased growth yields of several ropy mutants on acetate medium might suggest that gluconeogenesis is altered in these mutants.

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Table I. Growth of ropy mutants on glycerol and acetate.

Strain	Yield glycerol	mg/ml) ^a Acetate
74 A	0.76	0.70
<i>glp</i>	4.98	0.72
ropy-1	0.02	0.58
ropy-3	0.11	1.94
ropy-4	0.02	0.03
ropy-6	1.36	0.52
ropy-7	0.05	0.36
ropy-8	2.96	0.42
ropy-9	0.12	0.54
ropy(P904)	0.82	0.62
ropy-like-1	2.38	0.22
ropy-like-2	2.36	0.40
ropy-like-3	0.33	0.50

^aBased on dry mass of cells obtained from 50 ml of minimal medium after growth for 72 hours at 30°C.