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Abstract

Uninucleate microconidia of high germinability are desirable for measurement of nuclear ratios, recovery of homokaryons following transformation by DNA and for isolation of mutants. The *mcm* genotype of *Neurospora crassa* (RM 39-8A; FGSC 7091, a sixth generation progeny from a cross of 74-ORS-6a x Vickraman A) produces abundant microconidia by microcycle microconidiogenesis in liquid shake cultures at 22oC (Maheshwari 1991 Exp. Mycol. 15:346-350).

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Uninucleate microconidia of high germinability are desirable for measurement of nuclear ratios, recovery of homokaryons following transformation by DNA and for isolation of mutants. The *mcm* genotype of *Neurospora crassa* (RM 39-8A; FGSC 7091, a sixth generation progeny from a cross of 74-ORS-6a x Vickraman A) produces abundant microconidia by microcycle microconidiogenesis in liquid shake cultures at 22oC (Maheshwari 1991 Exp. Mycol. 15:346-350). In the present study (8 experiments, 3 replicates per experiment) the percent germination of RM 39-8A microconidia, estimated by plating 150-230 microconidia on sorbose medium (Vogel's salts, 0.05% glucose, 0.05% fructose, 2% sorbose, 2% agar) and counting the number of colonies formed, was 25(+/-)12 (s.d.). By contrast, the percent germination of macroconidia obtained from surface-grown cultures of the same strain was 84(+/-)5 (s.d.).

Supplementation of the sorbose medium with malt extract, yeast extract, casamino acids, each at 0.1%, either individually or in combination, did not improve germination of RM 39-8A microconidia. The low germination of microconidia appeared to be inherent.

RM 39-8A was backcrossed to Oak Ridge wild type to derive a ninth generation *mcm* (RM 124-2A;FGSC 7455). Its microconidia consistently gave higher germination than those of RM 39-8A. The percentage germination of RM 124-2A microconidia estimated by plating 150-200 microconidia per plate in 5 experiments (3 replicates per experiment) was 60(+/-)16 (s.d.). Microconidia produced by surface-grown cultures of *pe fl* in different genetic backgrounds have also germinated to widely different extents (Munkres 1977 Neurospora Newslett. 24:9-10; Maheshwari 1991 Exp. Mycol. 15:346-350). Therefore, it appears that the presence of genes other than those which determine the microconidial phenotype control germination of microconidia, presumably by affecting the rate of uptake of nutrients. The high germination of macroconidia of the same genotype may be because of their higher endogenous reserves.

The *mcm* genotype can be made to yield microconidia selectively either in liquid (Maheshwari 1991 J. Gen. Microbiol. 137:2103-2115) or aerially on a cellophane-agar medium (see accompanying paper by A. Pandit and R. Maheshwari). The average viability of aerially produced microconidia of RM 124-2A was 36%. It therefore appears that other than the genetic background of microconidia, the method of their production can also influence germinability. These observations suggest that the germination of *mcm* microconidia can be improved further by selection.

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