Wilson, C.H.

Production of microconidia by several fl strains.

In the process of preserving various fl strains via silica gel and lyophilization, some alleles have been easier to work with. Of the frequently used fl stocks, those bearing the fl^p allele have typically been difficult to lyophilize, while those with the Lindegren allele L have not been problematic. It was assumed that such ease or difficulty was related to the number of microconidia formed by different strains. In recent years we have had success lyophilizing the difficult fl strains by using material grown on a conidiogenic medium described by Turian (Nature 202:1240, 1964) which is Westergaard-Mitchell (synthetic cross} medium supplemented with 10 mM citrate. Citrate was reported to stimulate conidiation on nitrate containing media.

Although the flp was more easily processed when grown on this medium, it was not known to what extent conidiation was enhanced in this or any other fl strain, nor was it known how these strains varied with respect to production of microconidia on minimal medium. Each of the eight fl alleles in the FGSC collection was grown on Difco minimal (min) as well as the conidiogenic medium (WM-cit). All stocks were grown on slants in 100 mm tubes incubated at 25° C and sealed with permeable membrane caps. Ten days after inoculation, a 6 mm diameter disc was cut from each culture and transferred to 1 ml of sterile water in a 75 mm tube, The disc was not ground, only agitated briefly with the aid of a vortex mixer. The water was then filtered through a cotton plug to remove mycelial fragments. Two drops (0.1 ml) were placed on a petri plate and sorbose minimal medium, cooled to 45° C. was added. Plates were swirled and incubated at 34° C. Colonies were counted after 1-2 days. Preliminary trials determined dilutions needed for strains producing more conidia and the numbers presented in the table were, in many cases, from diluted samples. No direct count of conidia was made,these numbers provide an estimated of viable rather than total microconidia formed.

Differences between strains were unexpectedly large. P4499 out-produced fl^p by nearly 260 times when grown on minimal. The stimulatory effect of citrate varied widely. Strain L paced the field, with conidial production amplified nearly 600 times, while P961 managed only a 5X increase. It cannot be said whether these represent allelic differences or if they are due to modifiers present in these strains of different genetic backgrounds.

TABLE I

Viable conidia produced per mm^2 *

allele	FGSC no.	(min)	(WM-cit)	ampli-fication
C-1835	1818	200	12,400	62
L	45	450	265,000	590
M155-5	807	460	3,540	8
P346	809	28	1,770	63
P961	1616	1060	4,950	5
P4499	2033	1945	95,500	49
fl^p	4317	8	142	19
Y234M474 (ylo-3)	4240	11	99	9

* average of two tests

- - - (Supported by :Grant #BSR-8484294 from NSF) Fungal Genetics Stock Center, Humboldt State University, Arcata CA 95521