Fungal Genetics Reports

Volume 27 Article 9

Possible natural cytoplasmic variants of N. intermedia.

A. Rieck

A. J. F. Griffiths

Possible natural cytoplasmic variants of N. intermedia.

Abstract

Possible natural cytoplasmic variants of *N. intermedia.*

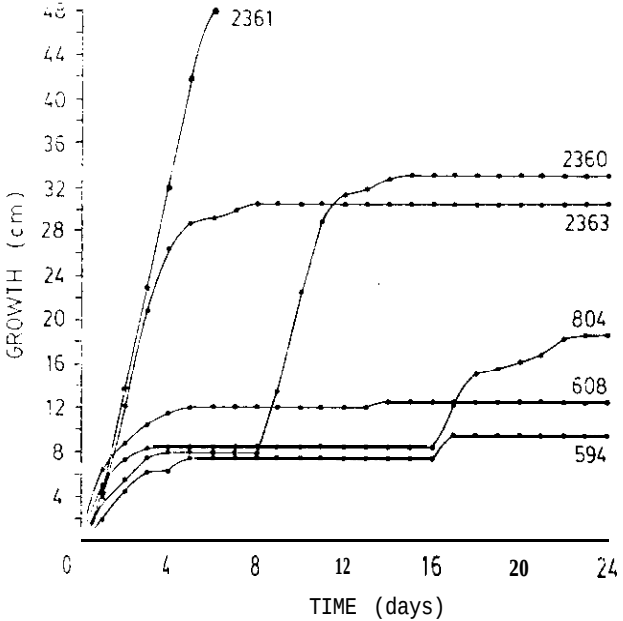

Figure 1. -- Representative growth curves of abnormal variants of N. intermedia in growth tubes containing minimal medium. Hanalei-1 (FGSC 2361) is a normal control. FGSC 2360, 2361, and 2363 were obtained from FGSC; the remaining cultures were donated by D. D.Perkins.

Rieck, A. and A. J. F. Griffiths.

Possible natural cytoplasmic variants of N. intermedia.

An initial survey of the FGSC collection of N. intermedia natural isolates revealed two variants with abnormal growth patterns. When the wild isolates are grown in race tubes, the majority show linear growth at rates close to that of N. crassa However; two variants from Kauai Hawaii, showed 'stop-start' behavior. Further isolates from Kauai were obtained from the collection of D. D. Perkins (designated 594, 608, 804); three of these also showed stop-start patterns. The growth curves are shown in Fig. 1, together with a control. All variants stop well before reaching the end of the growth tube, and any subsequent growth varies in time of initiation and in duration.

Strains of Hanalei-If (FGSC 2360) and Kekaha-1 (FGSC 2363) were crossed to normal Kauai strains, using both as male and female parents. Hanalei-If is mostly female-sterile, but one apparently successful cross yielded 2 isolates out of 79 which showed growth patterns similar to Hanalei-If. Two additional isolates grew slowly, taking 27 days to reach the end of the 500 mm tube. When used as a male parent, Hanalei-lf never produced stop-start

progeny, but 5 out of 72 isolates took 12-13 days to grow the length of the tube. Kekaha-1 yielded stop-start progeny either as a male parent (1 out of 86) or as a female parent (2 out of 53). Thus in these strains, the abnormal phenotype is evidently inherited in a non-Mendelian manner. The other three variants have not yet been analysed.

Hanalei-1f was investigated for the presence of virus-like particles using electron microscopy, but none were found. Preliminary biochemical studies of these two strains revealed some similarities to the group I mitochandrial mutants of *N. crassa* (e.g., {poky}) and also some differences. * Botany Department, University of British Columbia, Vancouver, B. C. V6T 2B1.