

Possible natural cytoplasmic variants of *N. intermedia*.

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Abstract

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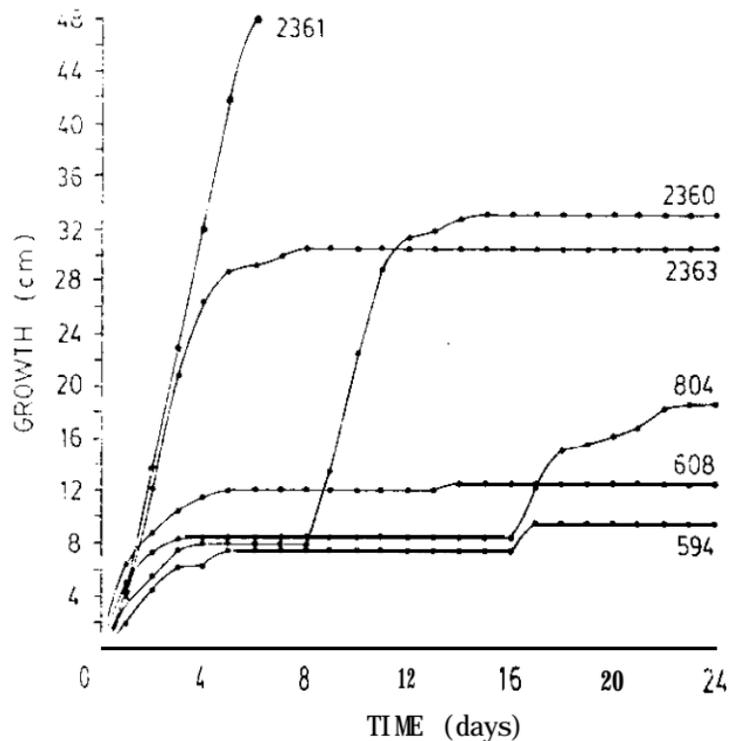
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Figure 1. -- Representative growth curves of abnormal variants of *N. intermedia* in growth tubes containing minimal medium. Hanalei-1 (FGSC 2361) is a normal control. FGSC 2360, 2361, and 2363 were obtained from FGSC; the remaining cultures were donated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

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-If 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.

Hanaiei-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 mitochondrial mutants of N. crassa (e.g., {poky}) and also some differences. * Botany Department, University of British Columbia, Vancouver, B. C. V6T 2B1.