

Esterase polymorphism in Neurospora

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Abstract

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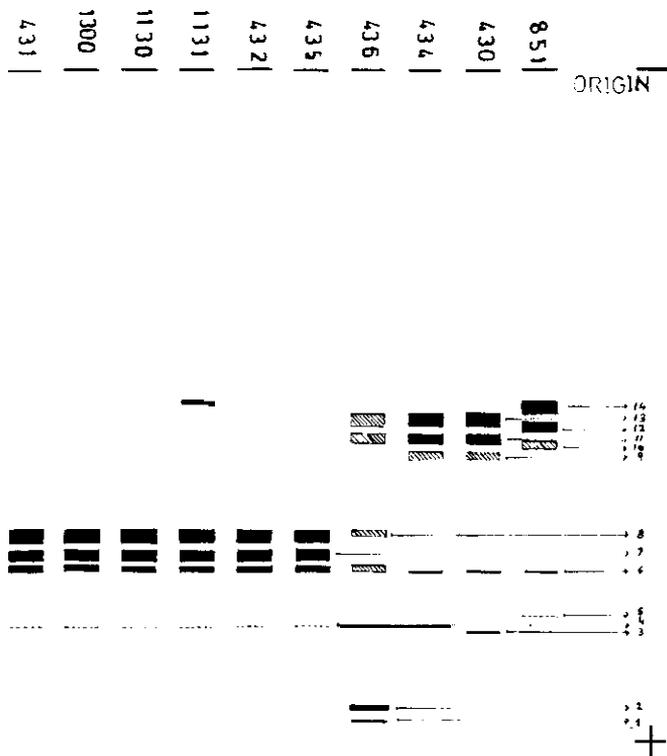


Figure 1.

The strains Honduras a, Java a, Panama a, Panama A, Fiji N6-6 A, and Fiji N6-1 a, present a rapid zone of great esterase activity formed by bands 6, 7 and 8; Panama A also possesses a weak band in position 14. Strains Liberia-4 A and North Africa A have three bands of heavy activity (9, 11 and 13), bond 6 is weak and bond 3 is very weak. Strain Costa Rica A contains bands 10, 12 and 14; bond 6 and band 5 are very weak. Strain Singapore-2 a has bands 11 and 13 of heavy activity, whereas bands 6 and 8 are much weaker, as are also bands 1 and 2. In all strains there is a zone of heavy esterase activity formed by three bands. This zone seems to be composed of two bands only in strain Singapore-2a. All strains present activity in site 6.

This esterase polymorphism is present in both wild type strains of *N. crassa* and among *Neurospora* strains of uncertain species collected in nature. It is strain Singapore-2 a that shows the most differentiation upon comparison with the rest of the strains analyzed. Crosses between the different strains lead us to conclude that four independent systems of isoesterases exist. Each one is controlled by two alleles, except the system which manifests the bands of greatest activity, which would be controlled by three.

Table 1. Wild-type strains studied

Strain designation	FGSC#	Mating type
<i>N. crassa</i>		
Costa Rica	851	A
North Africa	430	A
Liberia-4	434	A
Panama	1130	a
Panama	1131	A
Species uncertain		
Honduras	1300	a
Java	431	a
Singapore-2	436	a
Fiji N6-6	435	A
Fiji N6-1	432	a

Mycelial extracts were submitted to acrylamide gel electrophoresis and esterases were revealed with α - and β -naphthyl acetate. In the study of the zymogram, it was possible to distinguish three groups of strains with different mobilities for the esterases. Considering all strains together, fourteen bands were observed for these enzymes. The sites of bands have been numbered from 1 to 14. The number 1 corresponds to the band of greatest mobility towards the anode, and the number 14 to the band closest to the origin. (Figure 1)