Ribó, G. and Prevosti, A. University of Barcelona, Spain. Viability gene-frequency dependence in mutants of D. melanogaster.

We have studied the relative viability of five mutant strains of D. melanogaster (sepia, white, hairy-wing, quetas finas and caramel) in competence with a wild strain. Two density population levels have been established with one mutant strain and the wild one up to 100 and 800 eggs and three different frequencies of the mutant for each level: 80% + and 20% mutant; 50% + and 50% mutant and 20% + and 80% mutant.

For a low population density (100 eggs), in four of the five studied mutant strains we have found an increase of the relative viability when their frequency decreases (see table). In the sepia and white strains the viability increase is significant at the 0'05 level, this increase is almost so for the hairy-wing mutant and in quetas finas these differences are not significant.

On the other hand, the caramel mutant shows the opposite tendency, although the differences we have found are not significant at all.

When the population density is high (800 eggs) we do not find any relation between mutant viability and its frequency.

These results seem to indicate that the frequency dependence of the selection coefficients, as influenced by viability, is not rare when the population density is low.

TABLE

	80+/20mut. / 640+/160mut.	50+/50mut. / 400+/400mut.	20+/80mut. / 160+/640mut.	Variance between frequencies / Variance within frequencies (5 replicates)
sepia	1.148 / 1.171	1.230 / 0.721	0.661 / 1.050	4.553* / 0.584
white	0.984 / 0.258	0.413 / 0.270	0.306 / 0.267	5.461* / 0.0060
hairy-wing	1.002 / 0.484	0.555 / 0.638	0.471 / 0.397	3.140- / 0.850
quetas finas	1.061 / 0.720	0.939 / 0.843	0.695 / 0.909	0.999 / 0.518
caramel	0.862 / 0.962	0.984 / 0.646	1.167 / 1.172	0.307 / 1.729

$0.05 > P > 0.01$*
$0.1 > P > 0.05$-