

Krimbas, C.B., E. Diamantopoulou and M. Loukas. Agricultural College of Athens, Greece. Evidence on the absence of selective neutrality in isozyme alleles of Lap and Est loci in *D. subobscura*.

It has been repeatedly claimed that isozyme genetic polymorphisms, so commonly found in natural populations, are selectively neutral.

We have constructed several cages from many individuals originating from natural collections. These cages have been maintained from one to five years. Each cage contains

several thousands of flies, so drift is not an explanation for changes in gene frequencies. Every cage is characterized by the place of origin of flies and the year of collection.

Some of these cages have been sampled twice, once in 1968 and once in 1969 for two enzyme systems, leucineaminopeptidases and an esterase. Both these enzymes display polymorphisms which are controlled by two different genes located in chromosome O of *D. subobscura*. Table 1 shows the changes in gene frequencies within a year.

Table 1

		Lap						1969							
		1968													
		A	B	C	D	N	A	B	C	D	N				
Parnes	'65	.26	.65	.06	.03	65	.04	.96	-	-	84***				
Crete	'62	.45	.25	.30	-	65	.27	.60	.13	-	78***				
Holland	'63	.48	.51	.01	-	71	.18	.78	.01	.03	94***				
Pindos	'68	.17	.80	.01	.02	84	.12	.86	.01	.01	86				
		Est													
		A	B	C	D	E	F	N	A	B	C	D	E	F	N
Parnes	'65	.32	.21	.40	.03	.04	-	63	.67	.14	.09	.07	.01	.02	88***
Crete	'62	.58	.25	.12	-	.05	-	24	.74	.11	.07	-	.08	-	82
Holland	'63	.26	.02	.72	-	-	-	46	.43	.10	.43	-	.04	-	98**
Pindos	'68	.34	.18	.29	.01	.18	-	62	.40	.09	.40	-	.09	.02	90**

For the Lap locus allele B increased in frequency in all cases, in three of them the difference is highly significant statistically. It should be noted that every population is different from the others as far as gene arrangements of chromosome O are concerned.

The same pattern, although not so dramatic, is observed for the Esterase gene sampled: all cages show an increase of allele A.

The only plausible explanation of these results is that under cage environment allele B of Lap gene and allele A of Est gene are selected for. Experiments are under way to understand the exact mechanism of selection.

Asterisks indicate statistically significant differences between 1968 and 1969 samples. One asterisk indicates significance at the .05 level, two at the .01 level, three at the .001 level.

Götz, K.G. Max-Planck-Institut für biologische Kybernetik, Tübingen, Germany. Fractionation of *Drosophila* populations according to optomotor traits.

The optomotor control of orientation and locomotion in the fruit fly *D. melanogaster* requires the conveyance of information from distinct movement detectors in the visual system to distinct movement effectors in the motor system. Abnormalities of the optomotor

control system have been found occasionally in *Drosophila*. The abnormal flies can be isolated from population samples by appropriate fractionation according to the magnitude and the sign of the optomotor responses. A cyclically operating machine was used to fractionate two inbred strains, the wild stock "Berlin" and the mutant $In(1)sc^{0wa}$. Movements of an artificial visual environment elicit similar orientation control responses, but antagonistic locomotion control responses in the two strains. The responses depend on various parameters and may even change with habituation to the stimulus. However, the application of selection pressure through eight generations has little if any effect on the different optomotor behaviour of the inbred strains.