San Miguel Salán, E. Universidad de León, España. Male sterility in four populations of formaldehyde-treated Drosophila melanogaster.

Mutagenic properties of formaldehyde have been known for several years (Slizynska 1957; Auerbach & Kilbey 1971). Its relevance as environmental toxic has been emphasized recently (Perera & Petito 1982). On the other hand, their effects on the partial components of fitness are not yet well understood. In this communication I wish to report the effects of this toxic on the male sterility of D.melanogaster.

Samples of four populations of D.melanogaster were treated with the toxin by the larval feeding method. Populations, experimental treatment, etc., have been described in the previous Research Note (this issue).

Males developed in control medium, and the survivors at 0.2% (v/v) formaldehyde-treated populations were mated invididually with two virgin females of the Cyl/Pm stock, into vials (10 x 2.5cm) containing 10 ml of control medium. The individuals from each vial were kept together for 11 days at 21°C, after which they were removed, and the vials without any emerging adults were scored.

Table 1 indicates the total number of males analyzed (t), and the number of sterile males (s) with their respective percentages (%s). The results suggest that all populations were sensitive to the toxic, at least variably, as shown by the higher sterility percentage in relation to the control populations. More extensive experiments are under way to establish more definitive conclusions.

Table 1.

	Populations							
	TEVERGA		FELGUERA		URBANA		NARANCO	
Samples	s/t	%s	s/t	%s	s/t	%s	s/t	%s
Control	0/50	0.00	1/80	1.25	1/80	1.25	2/80	2.50
Treated	3/37	8.10	5/44	11.36	8/49	16.32	11/80	13.75

References: Auerbach & Kilbey 1971, Ann.Rev.Genet 5:168-187; Perera & Petito 1982, Science 216:1285-1291; San Miguel 1984, DIS 60(in press); Slizynska 1957, Proc.Roy.Soc. Edinburgh 666:284-304.

Sanchez, J.A. and G.Blanco. Universidad de Oviedo, Asturias, Espana. The relationship between variance in rate of development and Adh genotypes in Drosophila melanogaster.

Lerner (1954) has argued that more heterozygous individuals should be characterized by increased developmental stability. Recent reports show evidence for this hypothesis. The more heterozygous populations of different species (lizard, Soule 1979; freshwater bivalves, Kat 1982; killfish, Mitton 1978; monarch butterfly, Eanes 1978; etc.) have lower amounts of fluctuating asymetry and variance for morphological trait. Mitton (1978) retorted that the results are surprising because on the basis of genetic variation of a single locus, a population can be subdivided into two groups that differ in their levels of morphometric variation.

The present paper aims to examine the relationship in D.melanogaster between heterozygosity at an enzyme locus (ADH) and variance of a quantitative trait directly related with the fitness (rate of development).

In this work, the progeny of individuals heterozygous for the Adh locus were classified according to their genotype, sex and rate of development. Two experiments were performed. In experiment A heterozygous flies were obtained from crosses between female F/F and male S/S; and in experiment B from reciprocal crosses. As there are no significant differences in rate of development between the sexes, we combined the data from the sexes in our analysis. Within each genotype (F/F, S/S or F/F) we estimated the phenotypic variation of the character (rate of development) using the variance and the coefficient of variation. The null hypothesis tested here is that individuals heterozygous have the same level of variation as individuals homozygous.

The results show that heterozygous have lower variance and coefficient of variation than both types of homozygotes (Table 1); and in three of the four comparisons these differences are statistically significant (Table 2). Both types of homozygotes have the same levels of variation (Table 1) and there are no significant differences between them (Table 2).