Trippa, G., C. Barberio, A. Loverre and P. Santolamazza. Istituto di Genetica, Universita di Roma, Italia. Phosphoglucomutase (PGM) polymorphism in natural populations of Drosophila melanogaster.

The distribution of phosphoglucomutase (PGM) polymorphism has been investigated in seven natural Italian populations. The samples were collected in Puglia (Castellaneta, Otranto and Corato) and Sicily (Ranna, Pedalino, Vittoria and Archi) during September-October 1971. The zymograms of single fly homogenates, following the technique by Spencer et al. (1964) and modified by Trippa et al. (1970) for single fly homogenate, show that the wild populations contain six anodic forms of PGM, each showing different electrophoretic mobility.

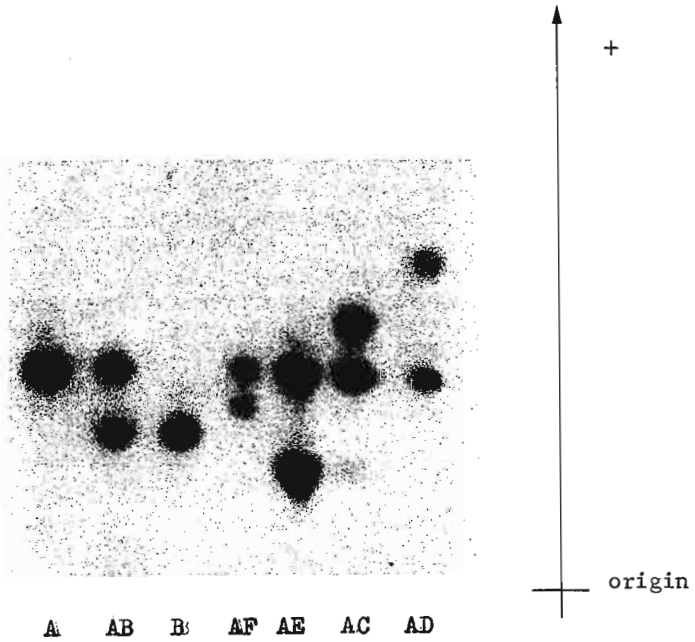

Fig. 1. The phosphoglucomutase patterns of the different genotypes observed in the present survey.

In addition to the more common and already described alleles Pgm^A and Pgm^B (Trippa, G. DIS 46:42, 1971) four new alleles have been found. They have been called Pgm^C, Pgm^D, Pgm^E and Pgm^F (Trippa, G., New Mutants, this issue). The corresponding forms migrate from the cathode to the anode in this order: Pgm^E, Pgm^B, Pgm^F, Pgm^A, Pgm^C and Pgm^D.

Before PGM phenotype determination all males were crossed with females homozygous for a known Pgm allele. The frequencies of the PGM phenotypic classes were the expected ones in all the offspring of those males who turned out to be carriers of new Pgm alleles.

The observed PGM phenotypic values and the allele frequencies found in the seven natural populations are shown in Table 1. The chi-square test for the Hardy-Weinberg equilibrium in the populations, where it was possible, showed no significant difference between the values for the observed against the

	PGM phenotypes								Gene Frequencies	
Populations	A	AB	B	AC	AD	BC	AE	TOT		
Castellaneta	177	28	4	3	1	-	-	213	Pgm^A=90.6 ± 1.38 Pgm^C= 0.7 ± 0.40	Pgm^B= 8.5 ± 1.34 Pgm^D= 0.2 ± 0.21
Otranto	258	29	1	2	5	1	-	296	Pgm^A=93.2 ± 1.03 Pgm^C= 0.5 ± 0.29	Pgm^B= 5.4 ± 0.93 Pgm^D= 0.8 ± 0.37
Corato	207	24	-	1	-	-	1	233	Pgm^A=94.4 ± 1.06 Pgm^C= 0.2 ± 0.20	Pgm^B= 5.2 ± 1.03 Pgm^E= 0.2 ± 0.20
Ranna	184	17	-	4	1	-	-	206	Pgm^A=94.7 ± 1.10 Pgm^C= 1.0 ± 0.48	Pgm^B= 4.1 ± 0.97 Pgm^D= 0.2 ± 0.22
Pedalino	143	19	-	-	-	-	-	162	Pgm^A=94.1 ± 1.31	Pgm^B= 5.9
Vittoria	31	11	4	-	-	-	-	46	Pgm^A=79.3 ± 4.22	Pgm^B=20.7
Archi	197	3	-	-	-	-	-	200	Pgm^A=99.2 ± 0.44	Pgm^B= 0.8

Table 1. Distribution of PGM phenotypes and allele frequencies in the seven wild populations.