

The remaining lethal visibles appear to be a kind of inversions that complement to give rise to viable visible. It is important that after neutron irradiation lethal visible patterns for the black and cinnabar loci that do not mutate intragenically with recessive lethality are similar to that found for the *vg* locus mutating in this way. In the light of these data it is obvious that neutron- and γ -ray-induced lethal visibles are a kind of the minute rearrangements (deletions or inversions) with the equal size and position. Therefore, neutron-induced lethal mutations as well as mutations produced by low-LET radiation are qualitatively the same, and the differences in the genetic action of two radiations in question have a quantitative rather than a qualitative nature.

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Alonso, A. and A. Munoz. Universidad de Cordoba, ESPANA. Biometric characterization of some wing measurement in *Drosophila melanogaster*.

Although genetic populations developed tremendously through Hubby & Lewontin research (1966) and due to electrophoresis techniques which enabled gene allele manifestations to be individually visualized, it is well known that not all genetic manifestations can be under-

stood in such terms. In the field of Quantitative Genetics, the auxiliary techniques are actually mathematical methods, biometrical to be exact. The research on heredity in the wing size of *D. melanogaster* published by Reeve & Robinson (1953) is very interesting, although these authors, as well as others usually use only one or two variables in their studies.

More recently, Alonso & Munoz (1982) have carried out multivariant analytical studies in order to localize discriminant traits. Of course, it is difficult to find concrete studies on wing size and form in *D. melanogaster* through use of multivariant analysis, but these can be found for other species (Lefebvre et al. 1974; Pereira 1972; Jolicoeur et al. 1960).

Using 100 males and 100 females in each of two laboratory populations, one maintained at 25°C and the other (a replica of the former) maintained at 30°C for one generation, we have carried out the fifteen measurements indicated in Fig. 1. The methodology employed was

the analysis of principle components, based on the covariance matrix, and on the correlation to obtain the factorial matrix (using the logarithmical transformation of data). The methodology has been found adequate for the idea we have pursued from the outset, which is to say, for the detection of measurements denoting size and of those indicative of the wing form of the fly, as well as for a discriminating analysis between the natural groups formed in this study; males at 25°C, males at 30°C, females at 25°C and females at 30°C. In the component

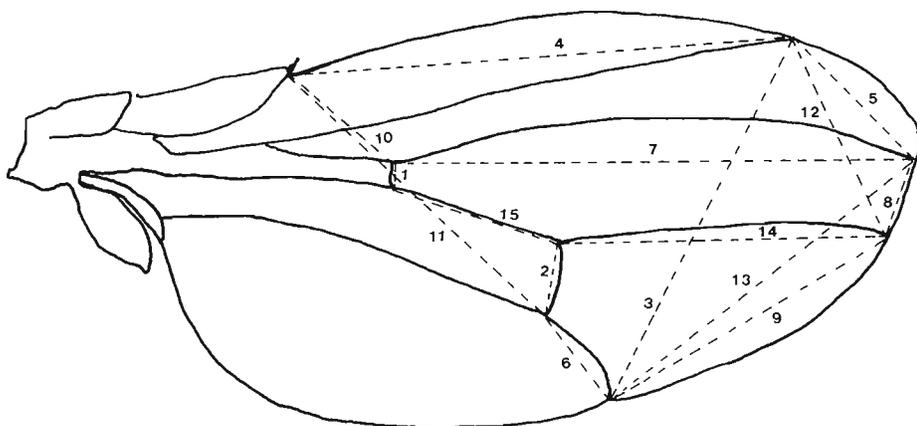


Fig. 1. Representation of the measurements taken on the *Drosophila melanogaster* wing.

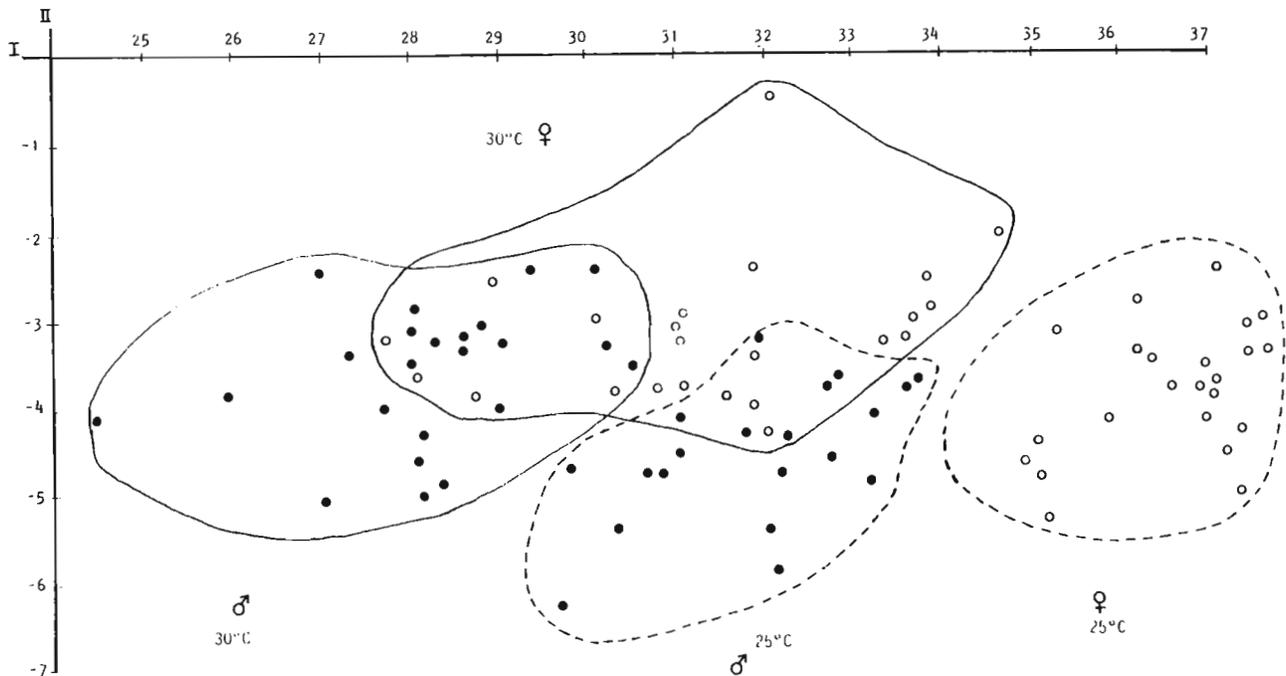


Fig. 2. Representation of the discrimination shown by the component principle analysis in the whole study, using only the first two components (I and II).

principle matrix, as the first component principle has a positive sign in all individuals and the second component is at times positive and others negative, the results confirm the fact that the first component indicates size and the second, form. From an examination of the factorial matrix, we deduce that the measurements denoting size are, in order of importance: 7, 3, 4, 13 and 14; the measurements indicative of form are 4, 15 (negative sign), and 1, 8 and 12 (positive sign) in such a way that when the former decrease, the latter increase and vice versa, thereby originating individuals with normal, lengthened or rounded wing forms as a result of the different interactions. The measurements 5, 9 and 11 have not been of use to indicate either size or form which is why they could be omitted in later studies.

Fig. 2. represents the relationship of the individuals with respect to the first two principle components (which absorb more than 80% of the total inertia); in this figure, the discrimination between the four established groups can be observed, although we must point out the somewhat ambiguous position of the females maintained at 30°C, the dysgenic temperature of these populations.

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