

Orevi, N. The Hebrew University, Jerusalem, Israel. Time of pn-Kpn interaction in males of *D. melanogaster*.

It was claimed that pn/Y; Kpn/+ males die in early second larval instar (Glassman 1962, Lifschytz and Falk 1969). Hackstein (1971) suggested that some of the larvae of the genotype pn/Y; Kpn/+ die at approximately 36 hours after

hatching, while others survive as long as 60-96 hours after hatching.

We studied the time of death of pn-Kpn larvae by taking advantage of the larval marker cho (chocolate-red Malpighian tubules, 1-5.4). Larvae from the mating y pn cho/y pn cho; +/+ x +/Y; Kpn/Kpn were studied by two methods.

a) Counted samples of more or less synchronous larvae were collected at given ages, the proportion of larvae that survived to imagoes was determined (Lifschytz and Falk 1969).

b) The proportion of yellow-chocolate larvae on petri-dishes in which eggs were laid for 2-3 hours was determined at various time intervals.

Three different pn alleles were studied. Although there were differences between alleles in details, the general pattern was uniform enough to be summarized as follows:

pn-Kpn larvae are smaller and their metamorphosis is much slower than that of the normal larvae (see also Hackstein 1971). The difference in size between pn-Kpn and normal larvae is conspicuous already at 28 hours after hatching.

As late as 90 hours after hatching up to 40% of the larvae were yellow-chocolate. Many pn-Kpn larvae survived long after the normal ones pupated; they became extremely large and accumulated melanotic tumors in the hemolymph. Some died as 3rd instar larval 180 hours after hatching.

References: Glassman, E. 1962, DIS 36:66; Hackstein, J.H.P. 1971, Molec. Gen. Genetics 111:373-376; Lyfschytz, E. and R. Falk 1969, Genet. Res. 14:53-61.

Tracey, M.L., O. Pavlovsky and M.M. Green, University of California, Davis, California. Hybridization of *D. melanogaster* and *D. simulans*. A frequency estimate.

The process of speciation may be thought of as the formation of reproductive isolating barriers between previously compatible populations. In the genus *Drosophila* almost all interspecific crosses produce progenies which are inviable or sterile. Under natural conditions sexual iso-

lation precludes, in general, the production of such hybrids; nevertheless, hybrid flies have been collected (Ehrman, 1962).

Interspecific crosses between *D. melanogaster* females and *D. simulans* males yield sterile females; the reciprocal cross yields sterile males. We have used this fact to estimate the frequency of hybridization between these sibling species in nature. The occurrence of unisexual progenies produced by single females may be due to i) sex ratio condition, ii) presence of tightly linked, complementary lethals on both maternal X chromosomes, or iii) hybridization. The first and second explanations are readily distinguished from the third because only the hybrid progeny are sterile.

At the McDonald Ranch collecting site in Napa County, California, populations of *melanogaster* and *simulans* are very large in September and October when the two species are roughly equal in frequency. To detect possible hybrid matings we distributed 1114 females, collected October 3, 1972, to individual vials on October 4, 1972. Between collection and distribution the females were held together with males and other species in half-pint bottles in a 16°C incubator.

Four of the 1114 females distributed yielded more than 25 females and no males. All other females (1110) produced bisexual progenies. At least 20 females, from each of the four unisexual progenies, were individually tested with *simulans* v and *melanogaster* Cy males. All 80 females were sterile.

Although the degree of sexual isolation between these species is high, it is known to be affected by sex ratio, male and female age, density, and genotype (Parsons, 1972; Manning, 1959). It is probable that some, if not all four, of the hybrid matings we have found took place in the half-pint holding bottles prior to distribution. Nevertheless, a hybridization frequency of  $3.6 \times 10^{-3}$  between wild *melanogaster* and *simulans* is offered as an approximate upper limit.

References: Ehrman, L. 1962 Quart. Rev. Biol. 37:279; Manning, A. 1959 Animal Behaviour 7:60; Parsons, P.A. 1972 Can. J. Genet. Cytol. 14:77.