

Loukas, M. Agricultural College of Athens, Greece. Breeding sites of *D. subobscura*.

Until now very little was known of the breeding sites of *D. subobscura*. Decaying Cornus berries in northern Italy (Buzzati-Traverso 1948), diseased Iris root in England (Smart 1945), oak galls of *Biorrhiza pallida* in England (Basden

1952) or slime fluxes, where larvae of other *obscura* group species are found (e.g., *D. ambigua* by Prevosti 1959) have been advocated as possible breeding sites. Also, *D. subobscura* flies emerged from rowan-berries collected in the field (Begon 1975), from apples (Hummel 1978) and from fruits of *Magnolia grandiflora* (Lachaise 1978). Finally Shorrocks (unp. information) found that the species breeds in England on mushrooms, especially *Amanita phalloides*, and Fontdevila (1978) in northwest Spain (Galicia) in *Amanita rubescens*.

We collected 30 fruits of *Ziziphus jujuba* and 30 orange fruits from the Botanical Garden of Athens. From the *Ziziphus jujuba* fruits 218 *D. subobscura* and 637 *D. melanogaster* flies emerged while from the orange fruits only *D. melanogaster*.

The rarity of all these substrates mentioned above does not seem to justify the great densities of *D. subobscura* at least in the "central" populations (Begon, Krimbas and Loukas in prep.). The situation resembles its North American counterparts, for which we ignore their breeding sites.

References: Basden, E.B. 1952, Entomol. Monthly Mag. 88:200-201; Begon, M. 1975, Oecologia (Berlin) 20:227-255; Buzzati-Traverso, A.A. 1948, DIS 22:69; Fontdevila, A. 1978, Bul. European Drosophila Pop. Biol. Group No. 2 (Leeds); Hummel, H. 1978, Bul. European Drosophila Pop. Biol. Group No. 1 (Leeds); Lachaise, D. 1978, Bul. European Drosophila Pop. Biol. Group No. 1 (Leeds); Prevosti, A. 1959, DIS 33:154; Smart, J. 1945, Proc. Roy. Ent. Soc. (London) B14:53-56.

Lujan, D. University of California, Santa Cruz. A comparison of TSP's of *Notch^{ts1}*, *shibire^{ts1}* and the double mutant.

Although a number of mutants affect the disposition of bristles on *Drosophila* none has the extensive pleiotropic effects of *shibire^{ts}* (Poodry et al. 1973) and *Notch^{ts}* (Shellenbarger and Mohler 1975). The developmental phenotypes

of these two mutants are remarkably similar even though the mutants are located far from each other on the X chromosome and they do not share the phenotype of reversible paralysis. A detailed analysis of the temperature-sensitive periods for each mutant and for the double mutant was undertaken to determine whether the loci interact in any way.

Strains bearing *shibire^{ts1}* (*shits¹*) and *Notch^{ts1}* (*Want^{ts1rb}*) and both mutations (*Want^{ts1rb} shits¹*) were reared in mass cultures on standard food at 22°. White prepupae were collected at 1 hr intervals, transferred to shell vials and shifted to 29° for 6 hrs then returned to 22° for the remainder of their development. The 6 hr heat pulses were delivered at various times in 1 hr increments from pupariation to 48 hrs after pupariation.

The results confirmed the similarity in phenotypes and temperature-sensitive periods reported previously. The effects causing deletion of structures are more severe in *shits¹*. The period from pupariation to pupation is lethal at 29° for *shits¹* but not for *Nts¹*. The deletion of bristles especially macrochaetes is much less severe in *Notch^{ts1}*. In contrast, *Notch^{ts1}* appears to have a much stronger response to heat pulses causing supernumerary microchaetes. Since the temporal pattern of temperature-sensitive periods is specific to various regions, and even to bristle rows, on the thorax a single 6 hr heat pulse may lead to overlapping phenotypes. That is, supernumerary bristles in one area or row may be near regions where deletion of bristles has begun. *Notch^{ts1}* is less effective in deleting bristles so the net result is a more hirsute thorax on *Notch^{ts1}* animals given comparable heat pulses to *shits¹*. The timing, duration and intensity of the effect on bristle shape called "scimitar" is the same in the two mutants.

The phenotype of the double mutant is essentially that of *shibire^{ts1}* alone. The presence of *Notch^{ts1}* does not enhance or rescue any of the *shibire* effects at the restrictive temperature. Neither does it alter the restrictive temperature.

The similar complex pleiotropic phenotypes of these two non-interacting temperature-sensitive mutants are difficult to explain by a hypothesis of intermittent gene activity. The interpretation we favor is that the temperature-sensitive periods reflect times when the particular cells enter a sensitive stage of their cell cycle or developmental program.

This work was supported by NIH Grant RR 08132.

References: Poodry et al. 1973, Develop. Biol. 32:373-386; Shellenbarger and Mohler 1975, Genetics 81:143-162.