

Ehrman, L., J. Leonard and A. Lewis.

State University of New York, Purchase, New York. On the mechanism of selective mating between two *D. paulistorum* semispecies.

Sexual isolation between the Centro-american and the Amazonian semispecies of *D. paulistorum* has been shown to be almost complete (Koref-Santibanez, 1972a and 1972b; Perez-Salas and Ehrman, 1971). Tests in Elens-Wattiaux (Elens and Wattiaux, 1964) direct observation chambers in these laboratories produced no intersemispecific

matings when Belem, Brazil, (Amazonian) ♀♀ (hereafter = B) were courted by Lancetilla, Honduras, (Centroamerican) ♂♂ (hereafter = H) or when the reciprocal cross was attempted. But 5% intersemispecific matings occurred when ♀♀ and ♂♂ of both semispecies were present simultaneously.

Extracts of Belem ♂♂ were prepared by grinding 1000 of them in chilled dichloromethane in a tissue grinder. The crude extract was painted on H ♂♂ and crosses with B ♀♀ attempted unsuccessfully in two trials involving 25 ♂♂ and 25 ♀♀ each trial. Although the numbers of intersemispecific matings were not enhanced in this way, the rate of mating (matings/unit time) could be reduced between H ♂♂ and H ♀♀ by painting this B ♂♂ extract on the H ♂♂ (that is relative to flies painted with only CH<sub>2</sub>Cl<sub>2</sub>). It was further found that this negative assay was possible even when strips of filter paper, coated with the CH<sub>2</sub>Cl<sub>2</sub> extract and allowed to dry, were added to the mating chambers (foam-stoppered 2 cm diameter vials containing 8 H ♀♀ and 6 H ♂♂). Subsequent chromatography of the extract on Quantum LQDF silica gel thin-layer plates indicated that the activity (measured by negative assay) is present in the fraction of R<sub>f</sub> = 0.77 to 1.0, when developed with CH<sub>2</sub>Cl<sub>2</sub>, indicating a relatively nonpolar compound. Illustrative times to 4 H ♀♀ x 4 H ♂♂ matings in these tests are:

Fraction (R <sub>f</sub> ):	0-0.23	0.23-0.35	0.35-0.53	0.53-0.77	0.77-1.0	CH <sub>2</sub> Cl <sub>2</sub>
Time (min.)	81	77	50	19	136	58

Variability of these preliminary results is high, but relative ordering appears to be consistent. Comments and suggestions on the proper treatment of the negative assay data are invited.

While determining baseline data, an interesting side observation was made. The effect of the pheromone of the common house fly (*Musca domestica*; Carlson, et al., 1972; the compound is 9-Z-tricosene commercially available from Hampstead Chemical Co.) on *Drosophila* mating behavior was measured. *D. pseudoobscura*, a North American species, was strongly inhibited by the presence of the pheromone, whereas the mating behavior of *D. paulistorum* (same two semispecies) was unaffected. Whether this difference is due to interspecific contact between *D. pseudoobscura* and *M. domestica* (and, inversely, the absence of such contact with *D. paulistorum*, a Neotropical species) or to some other factor (e.g., similarity of the *Musca* pheromone to other significant *D. pseudoobscura* sensory cues), has not been tested.

References: Carlson, D.A. et al. 1971, *Science* 174:76-78; Elens, A.A. and J.M. Wattiaux 1964, DIS 39:118-119; Koref-Santibanez, S. 1972a, *Evolution* 26:108; \_\_\_\_\_ 1972b, *Evolution* 26:in press; Perez-Salas, S. and L. Ehrman 1971, *Genetics* 69:63-70.

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Sang, J.H. University of Sussex, Brighton, England. Can ecdysones be fed to *Drosophila* larvae?

There are conflicting reports in the entomological literature on the effects of feeding ecdysones to insects. The following data suggest that both  $\alpha$ - and  $\beta$ -ecdysone are ineffective when fed to *D. larvae* grown on Sang's (1956)<sup>1</sup> medium

under germ-free conditions. The tu bw strain was used for these experiments to test if ecdysone suppressed melanotic tumor formation, and dihydrocholesterol was provided in place of the usual cholesterol since this raises tumor frequency and is itself unlikely to be converted to ecdysones<sup>2</sup>. The ecdysones were added at 45 hours of larval development, just prior to the

	Control	+ Tween 80	+ $\alpha$ -ecdysone	+ $\beta$ -ecdysone	
Larval period	0.743	0.786	0.757	0.764	log. days
Tumor frequency	91.2	87.7	98.7	98.1	per cent

time when tumors form, and were solubilised with Tween 80. Since none of the differences are significant the presumption is that the hormones are destroyed during absorption by the larvae