Ayala, F. J. and M. Ayala. Rockefeller University, New York City. Oviposition preferences in D. melanogaster.

Del Solar and Palomino (1) have discovered that D. melanogaster females prefer to oviposit near the places where eggs have already been laid by other females. This "gregarious" tendency is genetically controlled and can be selected for (2). Recently, M. Mainardi (3) has reported an experiment where females of the Oregon strain preferred to lay eggs on food containers "scented" by previous exposure to adult males rather than on intact food. She suggests that this preferential oviposition may be due to a male pheromone.

We have recently been investigating in our laboratory the problem of pheromones in Drosophila; we decided to reproduce Mainardi's results. Our experiment was conducted with the Oregon strain of D. melanogaster as follows. Small containers (2 1/2 cm in diameter) filled with Spassky's cream of wheat and molasses medium were yeasted and then scented by maintaining them for 24 hrs. in vials each containing 10 adult males. During the same time containers used as controls were kept in empty vials after having been yeasted. The test consisted in placing single inseminated females in vials (15 x 3 cm) containing two food containers, one scented and the other intact. The females were left in the vials for 24 hrs. at 19° C. After eight days the cylinders were inspected for the presence of larvae. Mainardi's results and ours are given below.

Experimenter	Number of females which laid eggs	Larvae in scented container only	Larvae in intact container only	Larvae in both containers
Mainardi	148	103 (69.6%)	29 (19.6%)	16 (10.8%)
Ayala	171	28 (16.4%)	61 (35.7%)	82 (48.0%)

In both experiments females appear to be able to recognize the previous presence of males in a site (the chi-square test is statistically significant in both cases). The preferences, however, go in opposite directions in the two experiments. In our experiment females preferred intact food sites while in Mainardi's experiment they preferred the food scented by males. It is difficult to see the basis of this dramatic discrepancy. The only apparent differences in the experimental procedure are in the size of the containers, the temperature (23° C in Mainardi's) and the length of oviposition (16 hrs. in Mainardi's). Mainardi does not say whether the food was yeasted. If it was not, or if the intact food was yeasted later than the scented food, yeast left by the males in the food may have made the "scented" food preferable. There may also exist genetic differences among the strains.

References: (1) Del Solar, E. and Palomino, H. 1966. Amer. Natur. 100:127; (2) Del Solar, E. 1968. Genetics 58:275; (3) Mainardi, M. 1968. Boll. Zool. 35:135.

Šrám, R., and H. Weidenhofferová. Institute of Hygiene, Prague, Czechoslovakia. Mutagenic activity of saccharin.

The mutagenic effect of one of artificial sweeteners - saccharin sodium ($C_7H_4O_3NSNa.H_2O$, mol.wt.223.1) - has been tested by the Muller-5 method. The compound was injected into the abdomen of flies with a microsyringe, as a 0.4% solution NaCl in 0.2 µl per fly. The three-day brood system was used.

CONCENTRATION in mM	BROOD 1	%	BROOD 2	%	BROOD 3	%	BROOD 4	%	BROOD 5	%
1.0	441/1	0.23	457/0		303/1	0.33	361/0		163/0	
2.5	439/1	0.23	413/0		430/0		474/0		437/1	0.23
5.0	412/10	2.45	470/0		444/0		261/1	0.38	130/0	
spontaneous mutation rate						0.14				

Sax and Sax (1968) found saccharin to break chromosomes in experiments with onion root tips.

Reference: Sax K., Sax H.J.: Japan. J. Genetics 43:89-94 (1968)