Bauer, S.J. York University, Downsview, Canada. Sex differences in pupation site choice in Drosophila melanogaster.

Pupation site choice (pupation height) was measured as the distance a larva pupated from the surface of the medium. Fifteen isofemale lines of Drosophila melanogaster were established from a natural population in the northern Toronto area and were tested for pupation height. Significant (F-19.55, $p<0.0001$) between line variation was found for this trait. From the 15 isofemale lines, two were chosen for further study: a low line and a high line. To determine whether there were sex differences for where larvae pupated, seven "strains" were tested: the two extreme lines, their two reciprocal crosses and backcrosses and the F_2 generation. A quantitative genetic analysis of pupation height in the isofemale lines will be published elsewhere. The present study reports a significant influence of sex on pupation height.

The method used was modified from Sokolowski and Hansell (1983). For each strain tested, 10 vials (11x2cm) containing 5.0 ml of a standard dead yeast-agar medium were each seeded with 10 closely-aged (±1.75 h) first-instar larvae. Care was taken to spill no medium on the walls of the vials. The vials were stoppered with standard-sized cotton balls and incubated at 24±1°C under conditions of 60% humidity with a light cycle of 12 hours light followed by 12 hours dark with the lights turned on at 8:00 a.m. Once the larvae had pupated and were close to emerging, the distance from the medium to a point between the two spiracles of each pupa was measured. The sex of each pupa was also recorded.

Table 1. Analysis of variance of pupation height for males and females of each strain of D.melanogaster.

Source of Variation	D.F.	F	P
Strain	6	17.83	0.0001
Sex	1	23.64	0.0001
Strain x Sex	6	0.62	0.7173
Residual	466		

Table 1 gives the results of an analysis of variance of pupation height for males and females for each of the seven strains tested. The effects of strain and sex were significant. In all strains, the mean male pupation height was higher than the mean female pupation height. There was no significant interaction between strain and sex. The results of an F_{max} test (Sokal & Rohlf 1969) showed that the variances were homogeneous ($F=2.64$, $p>0.05$).

The observed trend of sex differences in pupation site choice may be due to developmental differences between males and females. Casual observation showed that females tended to emerge before males and Alpatov (1930) found that males pupate before females. There also exist morphological differences between the sexes with females being somewhat heavier than males (Bakker 1959). Differences in pupation height between males and females may also have a genetic basis. When these trends are not taken into consideration, sex differences in pupation site choice in populations of Drosophila melanogaster could confound experimental results. For example, while selecting for an increase in pupation height, the sex ratio at each generation of selection will be heavily biased towards males.

References: Alpatov, W. 1930, Biol.Bull. Wood's Hole 58:85-103; Bakker, K. 1959, Ent. Exp. & Appl. 2:171-186; Sokal, R. & F.Rohlf 1969, Biometry, W.H.Freeman & Co., San Francisco; Sokolowski, M. & R.Hansell 1983, Behav.Genet. 13:267-280.

Belo, M. and D.A.Banzatto. Campus de Jaboticabal-UNESP, SP, Brasil. Association between Drosophila and yeasts. III. Attraction of males and females of D.ananassae.

The present experiment was carried out to confirm previous observations by Belo (1982) on the preference of D.ananassae (collected in Olimpia, SP, Brasil) for yeasts, which were classified according to the numbers of flies attracted in "most attractive," "intermediate" and "less attractive." Table 1 shows the frequencies of flies attracted for the yeast species in the attraction-box (Belo & Lacava 1980 & 1982).

The statistical analysis did not show any differences between males and females in their preferences for species of yeast, or for the interaction sex and yeasts, nor for the repetition within the sexes. The only detected difference was for the numbers of flies attracted to the yeasts. So in Table 1 the averages followed by the same letters are not statistically