Turner, D.C. and C.P. Wright Western Carolina University, Cullowhee, North Carolina. The effects of some human-consumed chemicals on development of Drosophila melanogaster.

A study of the effects of several human-consumed commercial products on the development of D. melanogaster was made. The following commercial products were used in the indicated concentrations: Bayer brand of aspirin - .25%, .5%, 1% and 3%; Accent brand of monosodium glutamate - 1% and 3%; Sweet-10 brand of artificial sweetener (contains 36% calcium cyclamate, 3% calcium saccharin, and 61% acacia) - 1%, 3% and 6%; and Norwich brand 1/4 grain sodium saccharin - 1%, 3% and 6%.

The various concentrations of the chemicals were prepared in distilled water and the resulting solutions were used in preparation of Carolina Biological instant Drosophila medium. In the control, instant Drosophila medium was used which contained distilled water only. The various concentrations of media were placed into sets of ten vials each. Three male and three female five-day-old Oregon-R flies were placed in vials containing the various media, and after five days of egg laying the flies were removed and development of the next generation was observed.

After five days of egg laying the P_1 adults were removed from the vials and counted to determine the number of flies which had survived. Table 1 shows that with increase in concentration of Bayer aspirin there was increasing lethality in the P_1 adults. Such a lethality effect was not observed in P_1 flies exposed to the other chemicals used in the experiment.

Table 1
Effects of Bayer Aspirin on P_1 Generation

Conc. of Bayer Aspirin	No. of Surviving Adults
0%	39
.25%	58
.50%	34
1.00%	7
3.00%	0

Table 2
Effects of Bayer Aspirin on F_1 Generation

Conc. of Bayer Aspirin	No. of Adults Produced
0%	981
.25%	1190
.50%	476
1.00%	58
3.00%	0

Table 3. Effects of Sweet-10 Artificial Sweetener on F_1 Generation

Conc. of Sweet - 10	No. of Adults Produced
0%	981
1.00%	1465
3.00%	1076
6.00%	129

Table 4. Effects of Norwich Sodium Saccharin on F_1 Generation

Conc. of Sodium Saccharin	No. of Adults Produced
0%	981
1.00%	1186
3.00%	776
6.00%	230

Table 5. Effects of Monosodium Glutamate on F_1 Generation

Conc. of Monosodium Glutamate	No. of Adults Produced
0%	981
1.00%	942
3.00%	948

Table 2 shows that with increasing concentration of Bayer aspirin, fewer F_1 adults were produced. Table 3 shows that with increasing concentration of Sweet-10 artificial sweetener, fewer F_1 adults were produced. Table 4 shows that with increasing concentration of Norwich sodium saccharin, fewer F_1 adults were produced. Table 5 shows that there was no significant difference between F_1 adult populations which developed on monosodium glutamate and those which developed in the control.