DeMarinis, F. and F. Sheibley. Cleveland State University, Cleveland, Ohio. The effects of glutaramic acid and glutaramide on the eye size of Bar series.

It has been shown by Kaji (Annot. Zool. Japan 29:23, 1956) that the amide group $-CONH_2$ was actively responsible for increasing the number of facets in the Bar eye. Further, the present authors showed (Abs. Proc. XVI Inter. Cong. Zool. 2:203, 1963) that double amides of the type $NH_2CO(CH_2)_nCONH_2$ are more effective in increasing the number of facets in Bar. The present research note reports on the comparative action of glutaramide, $NH_2CO(CH_2)3CONH_2$, and glutaramic acid, $COOH(CH_2)_3CONH_2$, on the Bar series, that is the effect of substituting a $-COOH$ group for a $-CONH_2$ group on one side of the chain.

The experiment was carried out by adding to Pearl's formula proportionate amounts of the amide by weight. Eggs of different Bar stocks, B, BB, B^3, BB^3, BB^{36b}, and B^iB^i were permitted to develop on these experimental food mixtures. The effect on eye size was determined by counting the number of facets in the males. All tests were carried out at 25° C. The results are shown in Table 1.

Table 1

The effect of glutaramide, $NH_2CO(CH_2)_3CONH_2$, and glutaramic acid, $COOH(CH_2)_3CONH_2$ on eye size of the Bar series (♂♂ at 25°C.)

♂♂ genotype	2% glutaramide no. facets	2% glutaramic acid no. facets	control no. facets
B	over 600	112 ± 4.2	110 ± 3.2
B^3	over 600	244 ± 12	128 ± 7.5
BB	65.8 ± 2.6	28.1 ± 0.54	28.6 ± 0.66
BB^3	266 ± 9.6	98.1 ± 7.1	94.9 ± 6.2
BB^{36b}	253 ± 13	--------	70.1 ± 1.9
B^iB^i	388 ± 12	138 ± 4.5	134 ± 4.2

In each case 2% glutaramide significantly increases the number of facets of each genotype as compared to control. It will be noted that B and B^3 respond very much the same to glutaramide, that is both genotypes are restored to wild phenotype eye. When each genotype is doubled on the same chromosome as in BB and BB^3, their response to glutaramide are quite different, BB increasing to only 65.8 ± 2.6 facets while BB^3 increases to 266 ± 9.6 facets. On 2% glutaramic acid these same genotypes give quite a different picture; B^3 is affected (244 ± 12) while B is not (112 ± 4.2 facets). In the double Bar, BB shows no increase (28.1 ± 0.54 facets) while BB^3 definitely shows an increase (98.1 ± 7.1 facets). This type of evidence not only confirms the individual genetics identity of these stocks but also shows a genotypic specificity to individual compounds.

Komma, D. J. and G. Carmody. Columbia University, New York. Interspecific variation in a "sex peptide" in Drosophila.

A molecular variant (M^{Zw}) of glucose-6-phosphate dehydrogenase (G-6-PD) in D. m. binds to a protein found in males only. The protein has the effect of decreasing the mobility of G-6-PD in starch-gel electrophoresis.[1] Several other species of Drosophila have been tested by homogenizing their males together with M^{Zw} D. m. females. Males of D. simulans, D. willistoni, D. tropicalis, D. insularis and D. paulistorum show an effect on G-6-PD migration similar to that of D. m. males. Males of "Girardot", a "bridge strain" capable of making fertile hybrids with both D. paulistorum and D. equinoxialis[2], retard G-6-PD migration more than do D. m. males, and males of D. equinoxialis seem to increase migration slightly. No females were found that had any effect on G-6-PD migration. The data indicate that this "sex peptide" is quite widespread in Drosophila. Whether it has any functional relationship to G-6-PD in normal flies is not known.

References: 1. Komma, D. J. Biochem. Gen. 1 (3) December, 1967.
2. Carmody, G. R. D.I.S. 40: 53. 1965.