Table 2. Five-day brood showing comparative productivity between control and 0.7 M MSG treated D. melanogaster

Treatment	Brood 1 0-5	Brood 2 5-10	Brood 3 10-15	Brood 4 15-20	Total	Sex Ratio
Control						
Total	3982	2887	1068	267	8204	
No. of vials	21	21	16	9		
Average	189.62	137.48	66.75	29.97	423.52	
Percent of total	44.77	32.46	15.77	7.00		
Monosodium Glutamate						
Male	1035	890	302	135	2362	1:1.017
Female	1058	834	287	144	2323	
Total	2093	1724	589	279	4685	
No. of vials	21	21	13	8		
Average	99.67	82.10	45.31	34.88	261.94	
Percent of total	38.05	31.34	17.30	13.31		

The Muller-5 method was used to determine the mutagenic activity of MSG. The male Oregon-R flies drank 0.7 M MSG for 24 hours and the flies were tested for sex-linked recessive lethal mutations. This test on 474 F_1 females yielded no recessive mutations.

References: Bazzano, G., J.A. Delia, and R.E. Olson 1970 Science 169: 1208-1209; Olney, J.W. 1969. Science 164: 719-721; Olney, J.W. and L.G. Sharpe 1969. Science 166: 386-388; Schaumberg, H.H. 1968. New Eng. J. Med. 278: 1122-1124; Turner, D.C. and C.P. Wright 1971. DIS 46: 118.

Thomas-Orillard, M. Faculté des Sciences de Paris VI, France. Influence of the culture medium on the number of ovarioles in D. melanogaster.

The phenotypic expression of the number of ovarioles is influenced by the environment. The rearing temperature (David et Clavel, 1967) and the food (Saviliev, 1928; David, 1960) have an important effect on this character. Control of the temperature is always possible: all the experiments are carried on at 25±0.5° C. It is more difficult to appreciate the quantity of food which is necessary for a perfect ovary development. A study of the influence of the food on the phenotype expression of the ovarioles number is necessary to establish the experimental conditions for a study of the action of genes. Culture medium nature, density of population, sensibility of each instar larva to feeding were examined on two laboratory strains with very different geographical origins: one from France, the other from Japan and also on crosses between French and Japanese strains.

The phenotypic expression of the number of ovarioles is different on cornmeal medium and on yeast medium: t test with 98 degrees of freedom gives a significant value for t; P = .05. It depends also on the quantity of culture medium available for each larva. The biometrical characteristics of a strain are stable when all the larvae are well fed during the three instars. When first, or first and second or three instars are not well fed the mean of ovarioles number decrease significantly (F test between effect of the culture medium at different instar and residual variation gives F = 4.15 for 3 and 41 degrees of freedom).

When the density of adult population does not exceed more than 50 animals for each culture bottle, the mean of the strain is stable; but when the density is bigger than 50 the mean decreases significantly from 36 ovarioles per female to 28. The ovarioles number of the females of the first generation is significantly greater than the arithmetic mean when the number of imagos is lower than 50 in the rearing bottles. It is not far from the arithmetic mean value when the density of the population varies from 100 to 150. We conclude, in the first case that there is evidence of heterosis, in the second case that genes have additive effects.

We see that in fact, this orientates the conclusions about the genes action. In all experiments on the genetic control of ovarioles number it is necessary to work with rearing bottles where the population density is maintained around 50. By this way, controlling the effect of feeding and working at constant temperature we can expect to run into the purely genetic problems.