Table 1. Frequencies of null-alleles in the course of time (initial frequency: 0.50).

Populations	Regular food						Ethanol-supplemented food			
	F_2	Time (weeks)					F_2	Time (weeks)		
		8	14	26	38	52		8	14	26
SO 1	0.50	0.45	0.44	0.37	0.35	0.22	0.23	0.06	0.01	0
SO 2	0.49	0.45	0.46	0.40	0.37	-	0.20	0.05	0.02	0
SO 3	0.49	0.44	0.38	0.36	0.33	0.31	0.18	0.05	0.01	0
SO 4	0.48	0.42	0.43	0.31	0.34	0.28	0.18	0.05	0.01	0
SO 5	0.49	0.46	0.40	0.33	0.28	0.24	0.23	0.05	0.01	0
SO	0.49	0.44	0.42	0.35	0.34	0.26	0.22	0.06	0.01	0
FO 1	0.46	0.42	0.42	0.33	0.33	0.30	0.26	0.01	0	0
FO 2	0.44	0.41	0.40	0.33	0.28	0.27	0.24	0.02	0	0
FO 3	0.49	0.44	0.41	0.38	0.36	0.23	0.23	0.03	0	0
FO 4	0.50	0.43	0.38	0.35	0.32	0.22	0.20	0.03	0	0
FO 5	0.50	0.42	0.37	0.24	0.28	0.28	0.20	0.01	0	0
FO	0.48	0.42	0.39	0.32	0.31	0.26	0.23	0.02	0	0

From Table 1 it is clear that, as has been expected, a rapid decrease in frequency of the 0 allele has occurred on ethanol food: frequency of the 0 allele had dropped to 0.01 after 14 weeks (approximately 4 generations) in the SO populations and the 0 allele was even lost in the FO population. Also on regular food the frequency of the 0 allele decreased considerably: to 0.26 in 52 weeks (approximately 26 generations). It appears that the decline in 0 frequency is very similar in all populations of the same type: line effects are therefore small. We conclude that also on regular food the absence of ADH activity has detrimental effects and lowers the fitness of the homozygotes for the null allele; whether the fitness of the heterozygotes is also lowered is the object of further study.

References: Grell, E.H., K.B. Jacobson and J.B. Murphy 1968, Ann. New York Acad. Sci. 151:441-455; van Delden, W., A.C. Boerema and A. Kamping 1978, Genetics 90:161-191.

van Dijk, H. University of Groningen, The Netherlands. The relationship between ADH activity and body weight in D. melanogaster.

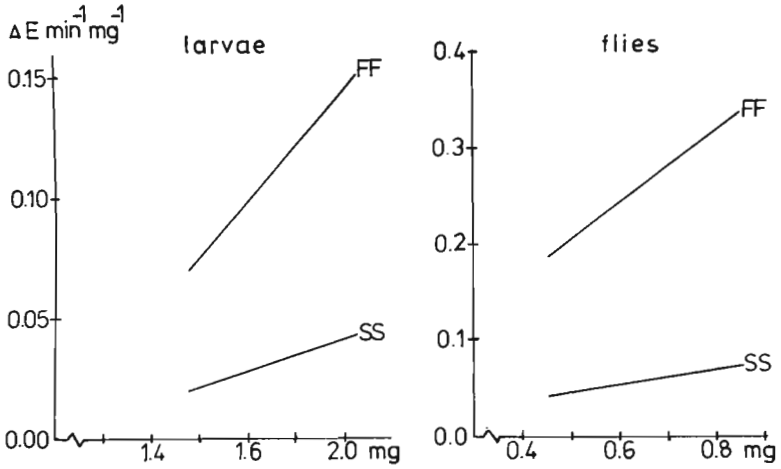
When measuring ADH-activity in larvae and flies of D. melanogaster it is important to take body weight into account. The parameter activity per mg is strongly positively correlated with body weight. The most likely explanation is the deposition of relatively large amounts of fat after reaching the critical weight. It is known (Ursprung et al. 1970) that fat bodies have a high ADH activity.

In this experiment done for the Groningen population (see Bijlsma-Meeles and Van Delden 1974) ADH activity was measured according to Van Delden et al. (1975) both in larvae showing the first signs of pupation and in 7-day-old male flies. Differences in individual weights were induced by varying the level of crowding. For ADH activity per mg ($\Delta E\ min^{-1}mg^{-1}$) = y and body weight (mg) = x, the following relationships were found (see figures on following page):

Larvae	ADH_{FF}	$y = 0.1144\ x - 0.0829$
"	ADH_{SS}	$y = 0.0355\ x - 0.0255$
Flies	ADH_{FF}	$y = 0.3765\ x + 0.0181$
"	ADH_{SS}	$y = 0.0776\ x + 0.0089$

All regression coefficients were significant ($P < 0.001$).

The larger ADH activities of larvae when ethanol is present in their food can be completely explained by this relation: body weights increase with increasing ethanol concentration. Selection experiments for increase of ADH activity will lead to selection for body weight when no precautions are made to keep body weight at a constant value.



Our Drosophila cultures were kept at 25°C. At lower temperatures body weight increases. The described relationship with ADH activity does not hold in this case. ADH activity per mg is then even somewhat reduced with increasing body weight.

References: Bijlsma-Meeles, E. and W. van Delden 1974, Nature (Lond.) 247:369; Ursprung, H., H. Sofer and N. Burroughs 1970, Wilhelm Roux' Archiv 164:201; van Delden, W., A. Kamping and H. van Dijk 1975, Experientia 31:418.

Vasudev, V. and N.B. Krishnamurthy. University of Mysore, India. Effect of Dithane M-45 on rate of development and viability in D. melanogaster.

Rate of development and viability are the two parameters by which toxicity of a chemical is measured. Such parameters were used to test the effect of Dithane M-45 on D. melanogaster (Oregon-K). Eggs of the same age (±4 hours) were collected following the procedure of Delcour (1969). 35 eggs were then placed into each 3" x 1" vial containing chemical-supplemented media and normal medium and permitted to develop at a constant temperature of 23±1°C. Concentrations of 2, 5, 10, 15, 20, 25 and 30 mg of the chemical were thoroughly mixed in 100 ml wheat cream agar medium. The normal medium was used as control. The flies were scored each day from the time of emergence up to the end of eclosion. The pattern of emergence of flies in the control and in different concentrations of Dithane M-45 is depicted in Fig. 1 (see following page). It is clear from this graph that in the control the emergence of flies started on day 9 with a peak on day 11 and terminated on day 17. In contrast to this, the rate of development is prolonged in different concentrations of the chemical, thus affecting the time of emergence. In the lowest concentration (2 mg/100 ml food medium) eclosion commenced on day 11 and ended on day 22 with a peak on day 14. On the other hand, in the highest concentration (30 mg/100 ml) emergence began on day 19 and terminated on day 29. Here the peak of emergence was confined to day 25. The effect of Dithane M-45 on viability was measured by the number of flies emerged in each group. Thus the number of flies obtained in the control is 93.57%, while in the lowest concentration it is 82.14%; in the highest, 3.57%. From these results it is clear that Dithane M-45 has a significant toxic effect at higher concentrations.

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Reference: Delcour, J. 1969, DIS 44:133-134.

Vasudev, V. and N.B. Krishnamurthy. University of Mysore, India. Effect of aspirin on D. melanogaster. II. Non-induction of sex-linked recessive lethals.

Acetyl salicylic acid, marketed under the name "Aspirin", is well known for its antipyretic, analgesic and anti-inflammatory activity. It has been convincingly shown that aspirin produces drastic changes in experimental animals and plants. It is reported by Vasudev et al. (1978) that aspirin has a pronounced effect on the rate of development and viability in D. melanogaster. So far, there are no mutagenic reports of this drug. Hence, the authors tested the mutagenic property of this drug by scoring sex-linked recessive lethals in D. melanogaster.

Oregon-K and M-5 of D. melanogaster formed the materials for the present study. Aspirin was fed to D. melanogaster larvae in concentrations of 300 and 350 mg per 100 ml of food