Table 2. Tumor manifestation in individuals carrying a tra tu-pb recombinant 3rd chromosome.

1. Tumor incidence in homozygotes tra,tu-pb/tra,tu-pb from the cross:

♀ $B^{S}Y/+$; tu/tu ; tra,tu-pb/tra,tu-pb x ♂ +/Y ; tu/tu ; TM3/tra,tu-pb

| transformed females | | males | |
|---|---|---|---|
| % tu | N. | % tu | N. |
| 8.09* | 184 | 8.42** | 190 |

* $\chi^2=86.032$; $P<0.01$

2. Tumor incidence in heterozygotes tra,tu-pb/tu-pb from the cross:

♀ $B^{S}Y/+$ ; tu/tu ; tra,tu-pb/tra,tu-pb X ♂ tu-pb/tu-pb

| females | | males | |
|---|---|---|---|
| % tu | N. | % tu | N. |
| 52.04* | 269 | 12.50** | 224 |

** $\chi^2=1.394$; $0.20<P<0.30$

Dubucq, D., E.Depiereux and A.Elens. Universitaires Notre Dame de la Paix, Namur, Belgium. Phototactism and temperature.

The data here presented concern the phototactical behavior of Drosophila flies, assayed according to Benzer (1967) and to Kekic (1981), at three temperatures: 20°C, 25°C and 30°C. In both methods, the negative as well as the positive responses to light are determined. In the Benzer "counter-current" method the flies are submitted, moreover, to repeated mechanical stimuli: the most "sluggish" flies remain in the "0.0" test tube, the most phototactic flies concentrate in the "0.5" tube. In the Kekic maze the most phototactic flies go to the right

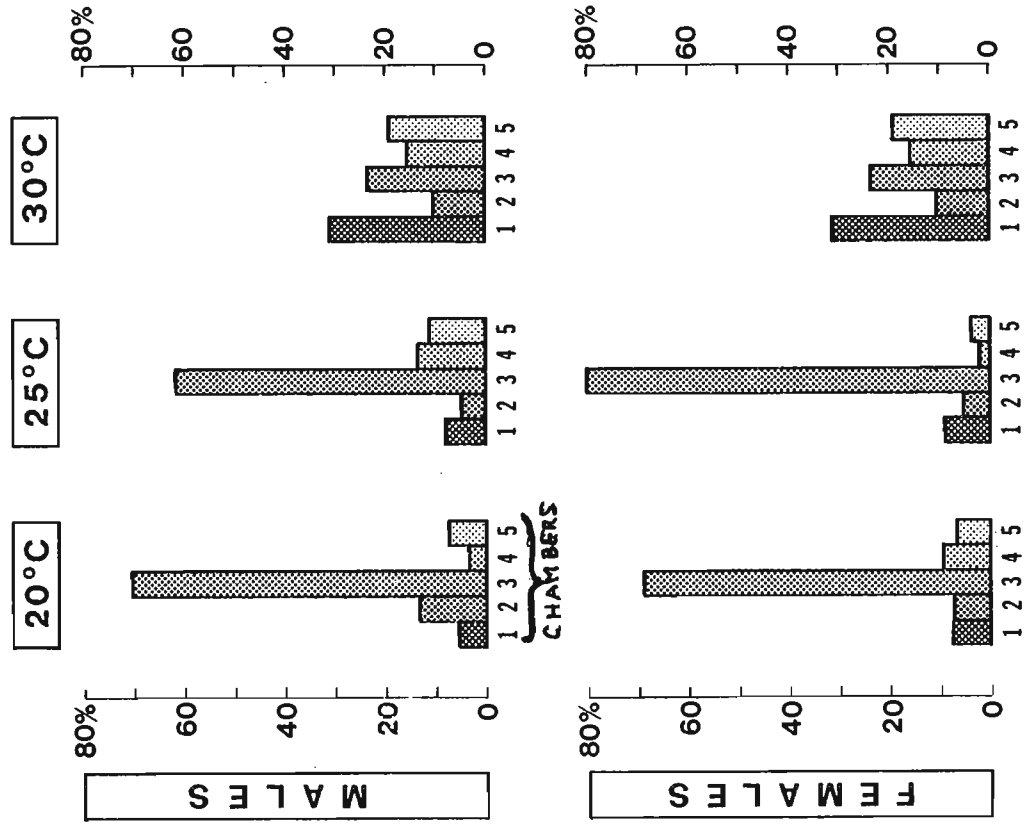


Fig. 1. Distribution of the flies after 1 hr tests in the Kekic maze (in%).

| Chambers | Light, lux |
|---|---|
| 1 | 500 |
| 2 | 800 |
| 3 | 2,000 |
| 4 | 4,500 |
| 5 | 6,500 |

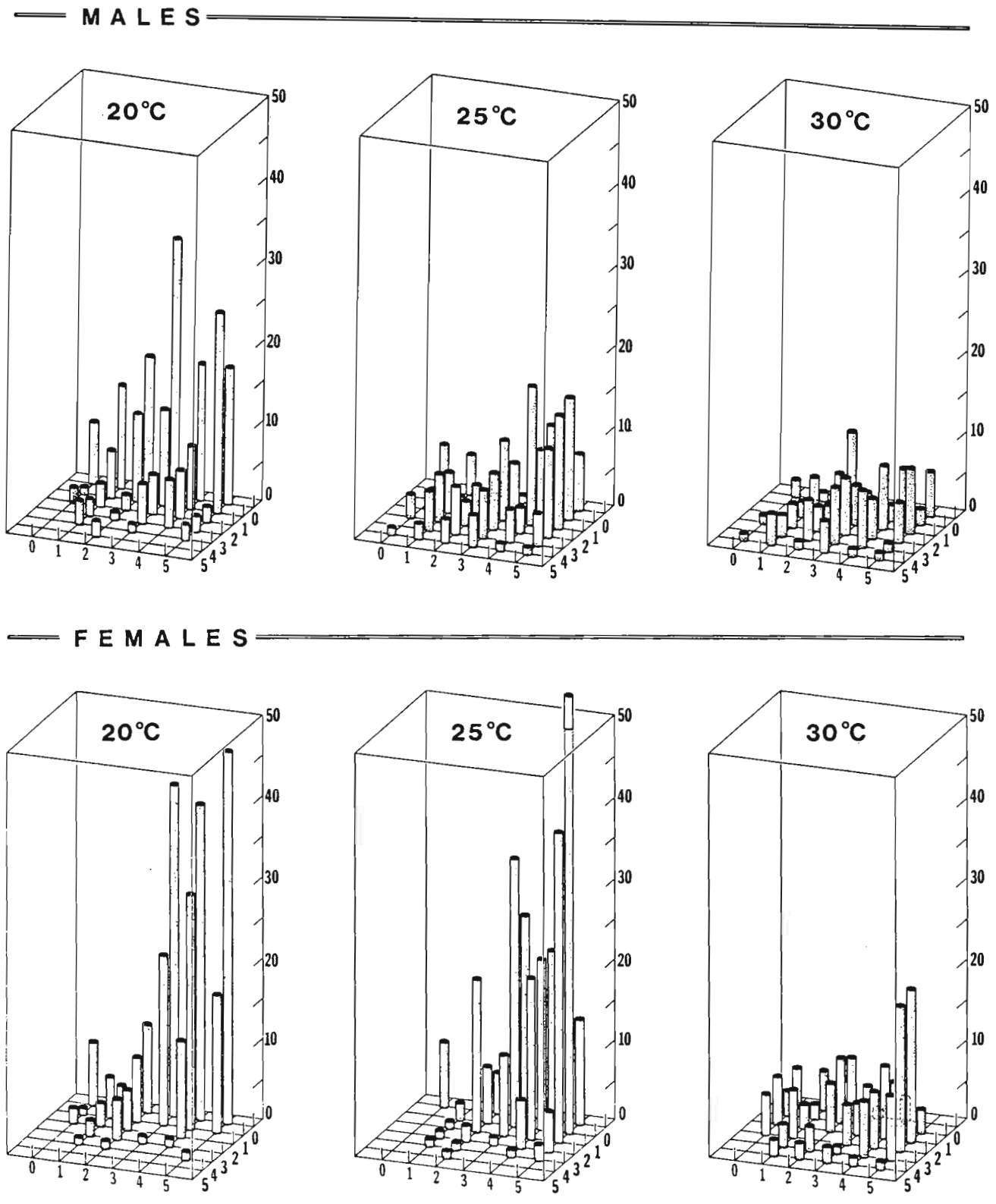


Figure 2. Distribution of the flies after a test for positive and for negative phototactism, according to Benzer (one minute runs). Ordinate: number of flies in the test tube. Front view abscissa: no. of positive responses (toward light). Side view abscissa: no. of negative responses (from light).

and the negatively phototactic go to the left; the most sluggish flies remain in the central chamber ("start"). The strain here studied is a "wild" one, called "Namur", and known as polymorphic for some enzyme variants. The tests have been done at the same time for both methods at the same temperature, with three repetitions for each temperature, according to a "latin square" design. Males and females were tested separately.

The Fig. 1 shows the results obtained using the Kekic maze. The Fig. 2 shows a three-dimensional representation of the final distribution of the flies in the different tubes after the tests done according to Benzer. In both methods, the phototactical behavior of the males and of the females differ significantly (with a probability of 0.0005, as shown by a $X^2$ test).

The influence of temperature is evident: at 30°C, the dispersion of the flies in the different test tubes or chambers is much more marked (the differences seem to be highly significant: probability of 0.0005 in the $X^2$ test).

The simplest explanation of it seems to be that the flies are more active at 30°C than at a lower temperature.

Perhaps a selection procedure for phototactism should give better results if the flies are tested at 30°C rather than 25°C.

References: Benzer, S. 1967, Proc.Nat.Acad.Sci. 58:1112; Kekic, V. 1981, DIS 56:178.

Duttagupta, A. and S.Banerjee. University of Calcutta, India. In vivo synchronization by Aphidicolin and Ricin in Drosophila.

Larval salivary glands of Drosophila contain an asynchronous cell population. They are in array of a replicating types, covering the whole of the S-phase. In our previous publication (Achary et al. 1981), we reported the usefulness of 5'-Flurodeoxyuridine in in vivo synchronization. In this report we present the results of our similar experiments with Aphidicolin and Ricin.

Aphidicolin is a tetracyclic deterpene tetraol, obtained from a fungus (Cephalosporium aphidicola). It is a specific inhibitor of DNA polymerase α with no effect on DNA polymerase β and γ (Ikegami et al. 1978). It binds to all eukaryotic DNA polymerase α reversibly (Huberman 1981). Ricin (Ricinus communis) a highly toxic plant protein, is also a potent inhibitor of DNA polymerase α (Bhattacharyya et al. 1979).

Early third instar giant female larvae of Drosophila melanogaster were fed on 1 ml (1M) sucrose containing 24 µg/ml Aphidicolin for 24, 48, 72, 96, 120 and 168 hrs and RIcin (1 mg/ml) was fed for 48 hrs only. Autoradiograms were prepared from the larval salivary gland. The frequency of labelling patterns was scored according to the classification of Chatterjee & Mukherjee (1975).

It can be observed from Table 1 that there was a net increase of 3C-3D types of nuclei (mid part of the S-phase), which reached its peak at 48 hrs, where 77% synchronized cells could be obtained. This then gradually declined as the feeding progressed. The frequency of DD-1C-2C (early patterns) remain more or less unchanged. Similarly Ricin produced about

Table 1. Frequency percent within the labelled nuclei.

| Patterns | Aphidicolin (24 µg/ml) | | | | | | Ricin(1mg/ml) |
|---|---|---|---|---|---|---|---|
| | 24 hr | 48 hr | 72 hr | 96 hr | 120 hr | 168 hr | 48 hr |
| DD | 3.07 | - | 0.68 | 0.50 | - | 1.23 | - |
| 1C | - | - | - | 0.50 | - | 1.23 | - |
| 2C | 1.53 | 0.61 | 1.37 | 2.50 | 2.05 | 2.46 | - |
| 3C | 16.92 | 27.60 | 28.96 | 16.00 | 23.28 | 27.77 | 29.26 |
| 3D | 49.23 (66.15) | 49.68 (77.28) | 46.19 (75.15) | 47.50 (63.50) | 45.20 (68.48) | 27.15 (54.92) | 45.12 (74.38) |
| 2D | 6.15 | 8.58 | 4.82 | 4.00 | 6.84 | 1.85 | 13.41 |
| 1D | 23.07 | 12.88 | 15.17 | 26.00 | 21.91 | 38.27 | 12.19 |
| CHL | - | 0.61 | 2.75 | 3.00 | 0.68 | - | - |