four concentrations of EMS used with regard to egg-to-adult development. For example, 0.25 percent EMS was toxic almost to the same extent in the three larval periods; 0.50 percent EMS was the most toxic in the second part and least toxic in the third part of larval life; 0.75 percent EMS was the most toxic in the third part and least toxic in the first part of larval life; 1.00 percent EMS was toxic to the same extent in the second and third parts and less toxic in the first part of larval life.

With the five concentrations of CHQ also, the three larval periods of D. melanogaster gave a weak differential response. For example, the lower doses (0.0645 and 0.0967 percent) of CHQ were the most toxic in the first part and least toxic in the third part of larval life whereas the higher doses (0.1290, 0.1612 and 0.1935 percent) of CHQ were the most toxic in the second part and least toxic in the first part of larval life.

In order to measure relative effectiveness of the two chemicals used, LD_{50} values were determined for each of the 32 hour periods of larval treatment. LD_{50} values were calculated from the least square regression equations, for the three periods of larval life, determined on the basis of percent egg-to-adult development obtained with different concentrations of EMS and CHQ.

Table 2 gives the least square regression equations and LD_{50} values considering Y=50, where Y is the percent lethality. A comparison of LD_{50} values for EMS with those for CHQ revealed that on the average 4.5-fold higher doses of EMS were required than those of CHQ to obtain 50 percent egg-to-adult development in D. melanogaster.

Morcillo, E. & J.L. Mensua. University of Valencia, Spain. Two new spots on thin-layer chromatography plates of eye colour mutants of Drosophila melanogaster.

By means of two-dimensional thin-layer chromatography (TLC) on cellulose plates, using as extraction dissolvent isopropanol acetic acid-water (4:1:5 by vol.) and as elution dissolvent isopropanol-2%-ammonium acetate (1:1, v/v) for first dimension (2 hr 30 min long) and 3% aqueous ammonium chloride for the second one (25 min), a study of variations on pterines pigments concentrations accumulated in the development of D. melanogaster (pupa and imago) has been performed. A total of 12 strains have been analyzed. Among them two were wild strains (the laboratory strain Oregon-R and a wild cellar strain), eight eye-colour mutants strains from laboratory (v, se, ca, car, cd, cl, pr and Hn^{r3}) and two mutant strains from cellar (95/2 and 1/51.3). Flies were reared at 25±1°C in low competence conditions.

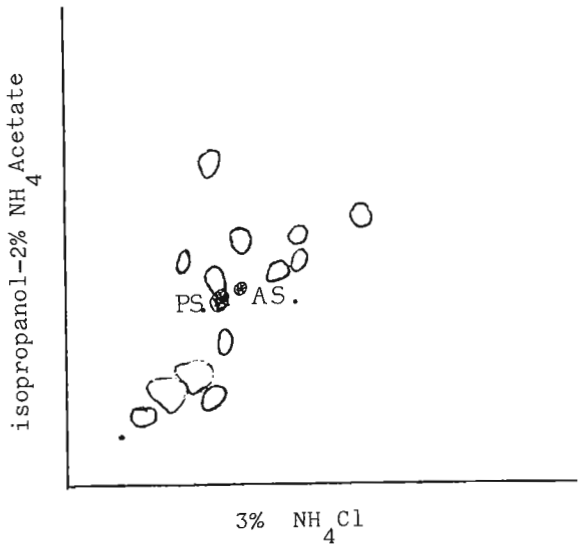

Fig. 1. Fluorescent pattern on TLC of an extract of D.m. Shadowed spots represent the two new spots.

The results permit the detection of two new spots, which have not been described by other authors (Fig. 1).

One of these spots is found in all the analyzed strains, with a similar developmental pattern in all of these. The spot is found in pupal stage, so it is described as P.S. In most cases, the concentration attained by this spot within 30 hr after pupation is kept for the rest of pupal life, whenever sepiapterin reaches a level similar to Or-R, which is taken as control in our experience. But in those strains where sepiapterin has a concentration higher than normal (cl, se, Hn^{r3} and 95/2), the P.S., concentration increases all the pupal life long, being directly relative to sepiapterin concentration. The P.S. spot is not detectable since the beginning of imago stage except in the strains car, cd and Hn^{r3} where P.S. is still detected in recently emerged flies.

This compound is found mostly or completely on bodies (experimentally shown by us) being $Rf:Rf^1 = 0.32$ and $Rf^2 = 0.22$. These Rfs, its colour and its yellowish fluorescency seem to

indicate that this compound belongs to the yellow pigment group.

The other spot (A.S.) is found in 4 among the 12 strains described. Car, Hn^{r3}, se and 95/2, being in the two last strains in a low concentration which seems to indicate that it may be present in most strains but it is not detected for not reaching the necessary level of accumulation. It is colourless and has a blue fluorescency, as Rf = 0.35 and 0.32 respectively. This spot is found in the strains car and Hn^{r3} in 80-90 hours old pupae at low concentration, attaining its maximum concentration in newly emerged flies and disappearing in adult flies from the third day on. In strains se and 95/2, the spot appears at the beginning of adult life at very low concentration, and disappears in adult flies from the third day on. The fact of this compound appearing in a development phase and disappearing after, seems to indicate this spot is an intermediate in the metabolic pathway which leads to drosopterins.

Work is in progress to further studies on these two spots in our laboratory.

Moya, A. & J.L. Mensua. University of Valencia, Spain. Dynamics of larval competition process: the overfeeding technique in Drosophila.

The overfeeding technique has been designed in order to analyze experimentally what happens in competition conditions cultures. Basically it consists of a break in the competition conditions, giving us information about the dynamics of larval competition process.

The experimental procedure was the following. Seventy larvae aged 2±2 hr were placed in two kinds of vials: large vials (10x2.7 cm) containing 5.0 ml of Lewis' medium and small vials (4x0.8 cm) with 0.5 ml of same medium. The large vial was considered as control in non-competitive conditions. Nine small vials, working at 25±1°C, were prepared, one of them not overfed and considered as control in highly-competitive conditions. The other eight small vials were overfed. The overfeeding technique (see Figure 1) was as follows: the small vials were transferred singly to a large vial with inclined food (overfeeding vial), a total of

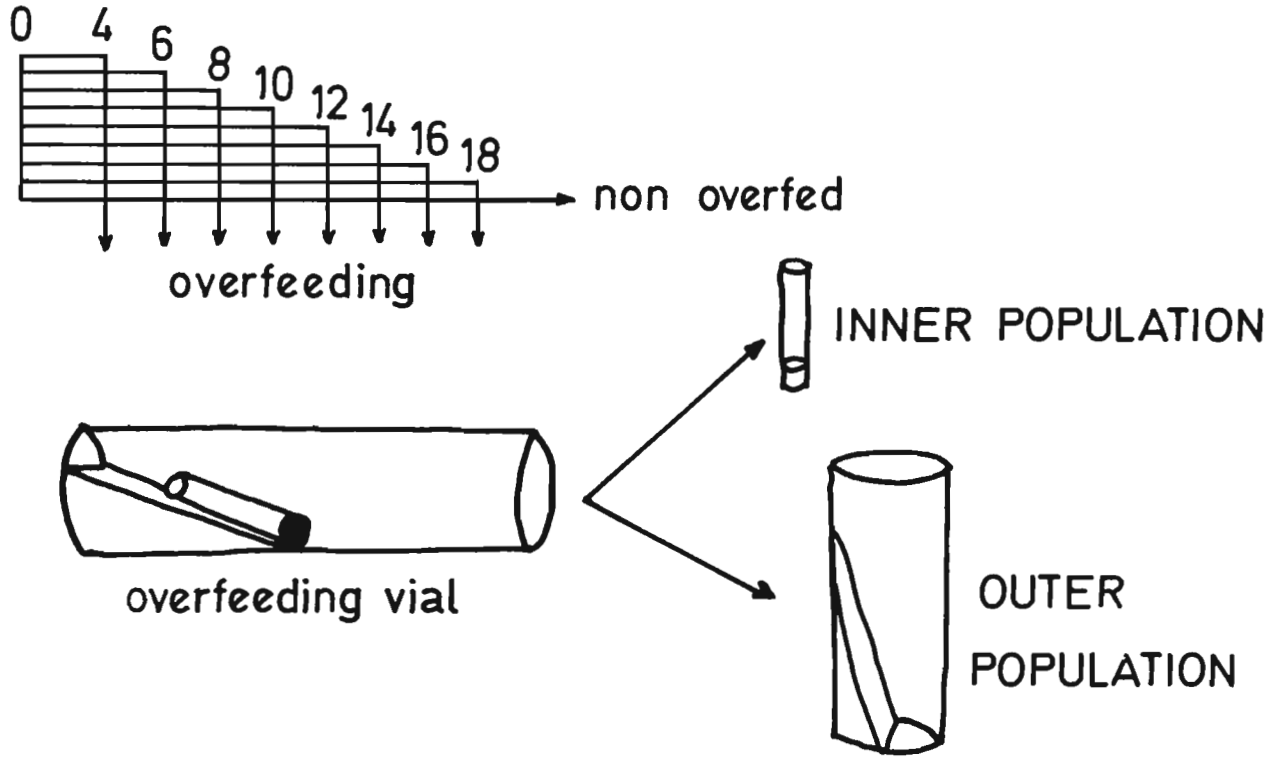

Figure 1. The overfeeding technique.