Table III. Chromatid abberrations produced by meprobamate in human leukocyte chromosomes in vitro

Meprobamate concentration (*M*)	No. of cells analysed	Achromatic lesions (AL)	Chromatid breaks (B')	Sum total of all breaking events per cell
10^{-7}	200	6	6	0.030
10^{-6}	200	3	8	0.040
10^{-5}	200	8	12	0.060
10^{-4}	200	3	7	0.035
Total	800	20	33	0.041

Only achromatic lesions (AL) and chromatid breaks (B') were seen (Table III). The sum totals of all breaking events per cell, representing the sum total of all B' per cell in these experiments, ranges from 0.030 to 0.060. With all mitoses tested (800) this value is 0.041. Control data from our laboratory range from 0.0250 to 0.1025 with a middle of 0.0633, ref.[10]. Our data show no chromosome breaking ability of meprobamate on human leukocytes in vitro.

C) *Therapeutical doses.* The therapeutical doses of meprobamate are 0.40 to 1.20 g per day in adults. Assuming a body weight of 75 kg we have a dose of 0.005 to 0.016 g per kg or roughly per litre (l) body fluid. The doses used in our test are in *Drosophila* 5.02 g/l (*X*-chromosome lethals) and 1.00 g/l (chromosome aberrations) and in human chromosomes in vitro up to 0.022 g/l (10^{-4} *M*). These calculations should be taken with caution but they show that the doses used in our test are well above the range of the doses used therapeutically.

Zusammenfassung. Mutagenitätsuntersuchungen mit Meprobamat an *Drosophila melanogaster* (*X*-chromosomale rezessive Letalmutationen, Chromosomenaberrationen in reifen Spermien) und an menschlichen Leukozytenchromosomen in vitro ergaben keine Anhaltspunkte für eine genetische Wirksamkeit dieser Substanz.

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Developmental Studies in *Drosophila nasuta* III. Developmental Obstinacy of the Eggs Laid after Starvation

The function of the female reproductive system is to produce eggs and provide for their fertilization and deposition[1]. The time spent by each egg in the uterus is stable[2]. The egg retention in *Drosophila* may occur under 2 circumstances: 1. When the females are virgins and 2. when the mated females are not offered a suitable site for egg laying[2]. In the latter case, the embryonic development begins within the female's reproductive system[3].

Delcour has given a procedure for rapid egg collection in *Drosophila*[4]. This has been employed by many investigators for competition and developmental studies[4,5,6]. The procedure is, after starving a stock of well-fed flies for 5 h, they are exposed to media for egg laying (100 cm^3 distilled water, 3 g Agar Agar, 1.5 cm^3 acetic acid, 2.5 cm^3 ethyl alcohol and a few drops of yeast, DELCOUR[4] has further suggested discarding the first batch of eggs obtained during 'First Hour' after starvation, reasoning that they may contain eggs of variable developmental stages.

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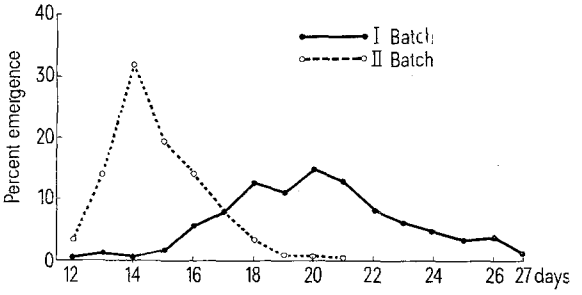

Fig. 1. Pattern of development at T^0 (21 °C).

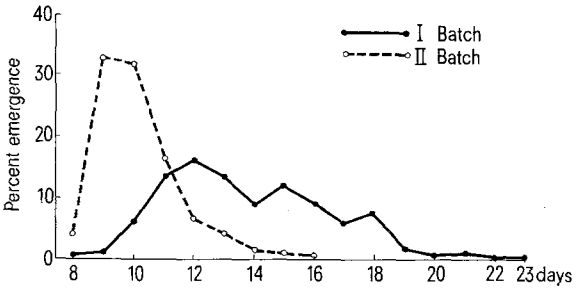

Fig. 2. Pattern of development at T' (23–28 °C).

During the course of investigations on the developmental studies in *Drosophila nasuta*, some peculiarities were observed pertaining to the rate of development of the eggs laid soon after starvation. The developmental obstinacy of these eggs during development are here reported. Following the procedure of DELCOUR[4], 2 batches of eggs were obtained: 1. The eggs laid during the first 12 h after starvation (± 6 h) and 2. of the eggs laid later (± 6 h). From each batch of eggs collected, half of them were incubated at a constant temperature of 21 °C (T^0) and the other half at an ambient fluctuating room temperature of 23 °C to 28 °C (T'). In order to maintain uniform pre-adult density, 100 eggs were transferred to vials (1″ × 3″) containing equal amount of food (normal wheat cream agar media) seeded with yeast. The first batch has 10 vials each at T^0 and T' and second has 29 vials at T^0 and 26 vials at T'.

Figures 1 and 2 illustrate the pattern of emergence of the adults at T^0 and T', respectively in the two batches of eggs. Table I gives the mean developmental time with the standard error of each batch. Table II incorporates the summary of the Student *t*-test computed to compare the mean values. The first batch of eggs exhibited significant retardation over the second batch of eggs at both T^0 and T' temperatures. Eggs laid soon after starvation, experience a slower developmental rate than the eggs laid afterwards. The tables also reveal that at room temperature the eggs undergo a faster rate of development than at the constant temperature.

Table I. Mean developmental time in days for the 2 batches of eggs

	Batch I	Batch II
T^0	20.11 ± 0.095	14.84 ± 0.049
T'	13.74 ± 0.089	10.14 ± 0.045

Table II. Summary of the Student *t*-test computed to compare the mean values within and between batches of eggs at T^0 and T'

	I and II of T^0	I and II of T'	I of T^0 and I of T'	II of T^0 and II of T'
t value	52.70	40.00	49.00	78.33
p value	<0.001	<0.001	<0.001	<0.001

During starvation the eggs have remained in the reproductive system and are otherwise laid if there is a suitable surface. These detained eggs can be expected to have initiated their early embryonic development before they were laid. This being so, these first batch of eggs should manifest comparatively a faster rate of adult emergence than the eggs of the later batches.

Inspite of this, why sould the first batch of eggs collected soon after starvation manifest a delayed rate of development? Though it is difficult to assign any definite reasons for this, some suggestions could be made. The disparity in the rate of eclosion of adult flies may be due to the following reasons. If the sojourn of the oocytes exceed the prescribed optimum period within the reproductive system, it may affect their future development; retention may end up in the prodigality of the eggs of different stages in the system, which may affect the egg physiology resulting in the retardation of development, and/or it may be due to the biological homeostatic obstinacy of the population during the period of starvation in nature to prolong their developmental period to get over the inimical conditions of nature.

Further work is in progress to decipher this event. It is felt that in employing the Delcour's procedure care has to be taken to eliminate the first batch of eggs (first 12 h) collected after starvation.

Zusammenfassung. Weibchen von *Drosophila nasuta* wurden während 5 h gehungert. Nachkommen aus den in den nächsten 12 h abgelegten Eiern entwickelten sich bedeutend langsamer als jene aus den später abgelegten Eiern.

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Induced Interchanges in Finger Millet (*Eleusine coracana* Gaert)

Chromosomal interchanges constitute one of the most important type of structural change resulting in alteration of chromosome morphology and number. They are used not only to gain basic cytogenetic information but also as aids in breeding (BURNHAM[2]). Induced translocations were first reported by Stadler in maize in 1930. Since then, interchanges have been induced in many crop plants. SJODIN[6] made extensive studies on induced translocations in *Vicea faba*. However, such studies have not been reported in finger millet, *Eleusine coracana* which is one of the important millet crops of South India. The present paper deals with certain cytogenetic aspects of induced translocations in this crop.

During the course of our detailed cytological studies in the gamma irradiated material, plants showing interchanges were observed in the progenies of seeds treated with doses of 20, 30 and 40 Kr gamma rays in the variety CO·1. For the isolation of interchange heterozygotes, plants showing 50% or more sterility were selected and the meiosis was studied in the flower buds fixed in 1:3 acetic alcohol. Anther smear preparations were made using 1% acetocarmine. Well spread meiotic plates were analysed for the frequency and types of quadrivalents, and the data are presented in the Table. Out of the 50 plants studied, 19 plants were found to show interchanges. The study of frequency of cells with translocations revealed considerable differences in different plants. Percentage of cells with quadrivalents ranged from 5.0% to 71.4% in different plants. The frequency of types of quadrivalents observed in different translocation heterozygotes is also given in the Table. It is clear from the Table that the frequency of ring and chain quadrivalents also varied in