Amorbus rhombifer was compared with authentic samples on GLC[1]. Required concentrations were prepared in acetone as the chemical did not dissolve in distilled water. Seedlings treated with acetone were used as control. For mitotic observations actively growing seedlings in control and treated samples were fixed in 1:3 acetic alcohol for 24 hr and then transferred to 70% alcohol. After treating the seedlings with BB, they were washed thoroughly with distilled water. Aceto carmine technique was used for cytological observations. From each treated concentration, 2000 cells were observed for various cytological aberrations.

Observations were recorded to study the cytological aspects of treated and control samples of *A. sativum*. The samples treated with 0.001% concentration showed its similarity to that of control. However, some of the cells with multi-polar groups and chromosomal breakage at metaphase were observed (figures 1, 2). The chromosomal bridges at metaphase and diplochromosomes were commonly observed in the concentration of 0.01% (figures 3, 4). This may possibly be due to the inactivation of the spindle apparatus and the consequent delay in the division of centromere[6]. Most of the cells treated with 0.1% concentration have shown early separation of chromosomes at metaphase (figure 5). The 1.0% concentration induced mitotic aberrations in the form of unoriented and fragmented chromosomes at anaphase (figure 6). It was found that higher concentrations of BB showed greater effect.

n-Butyl butyrate may act as a wetting agent that facilitates the penetration of the main toxicants[7]. The action of BB on mitosis of *A. sativum* showed inhibition of cell division, spindle apparatus and cell wall development. This inhibitory effect may be due to the blockage of DNA synthesis[8]. In general, the spindle inhibiting action mostly caused by other c-mitotic agents[9]. These results may possibly suggest that higher concentrations of BB act as mitotic spindle inhibitor in the present experimental material.

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EFFECT OF OVARIECTOMY ON PROTEIN PATTERN AND CONCENTRATION IN *DYSDERCUS KOENIGII* (HEMIPTERA)

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AN ovarian factor inhibiting CA and thus retarding ovarian development has been suggested for Diptera[1–3], Blattaria[4–6] and Hemiptera[7]. The present study was undertaken to see whether any ovarian factor is essential for the synthesis of proteins particularly the vitellogenin (VG) in the fat body of *Dysdercus koenigii*.

Insects were obtained from our laboratory culture maintained at 27 ± 1°C and 16 hr photoperiod. Electrophoresis was performed according to the method of Webber *et al*[8]. The haemolymph protein concentration (HPC) was determined according to the method of Lowry *et al*[9]. Since ovarian development largely depends upon VG, ovariectomy was performed in 2-day-old ultimate larval instar to see

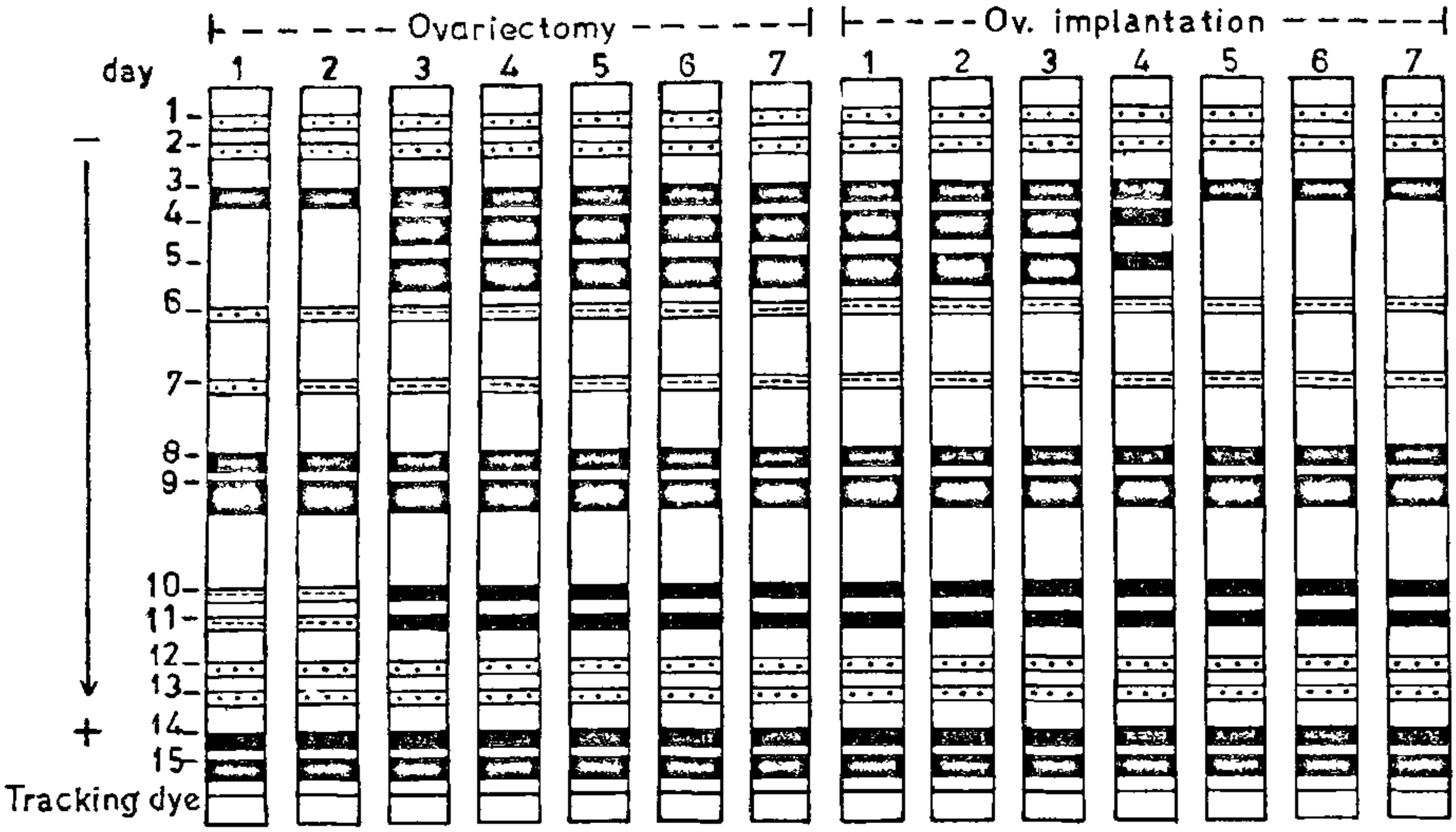

Figure 1. Effect of ovariectomy and ovary implantation on the fat body protein pattern.

if it could interfere with the synthesis of these proteins. The ovaries were extruded by a slight pressure around the incision on both sides of the second abdominal sternum and were scrapped off after counting seven ovarioles which comprise each ovary. A drop of penicillin-streptomycin mixture dissolved in insect ringer[10] was applied on the wound to prevent infection. The adult females emerging from ovariectomized larvae were divided into two groups: insects of one (experimental) group received a pair of ovaries removed from a newly emerged adult female on day 8 of postemergence through an incision made on the second abdominal sternum and those of the other (ovariectomized control) group received a piece of muscle fibre. The rest of the treatment was the same.

It has earlier been established[11] that bands 4 and 5 present in the haemolymph and fat body of the adult female of *Dysdercus koenigii* are vitellogenic. The fat body protein pattern (FBPP) of ovariectomized females (figure 1) is similar to that of the normal female (figure 2) except that the VG (bands 4 and 5) appear on day 3 and persist throughout the ovarian cycle. In normal female they appear on day 2 and disappear on day 4 postemergence, remaining absent thereafter. Following implantation of ovary in ovariectomized females VG get reduced on day 4

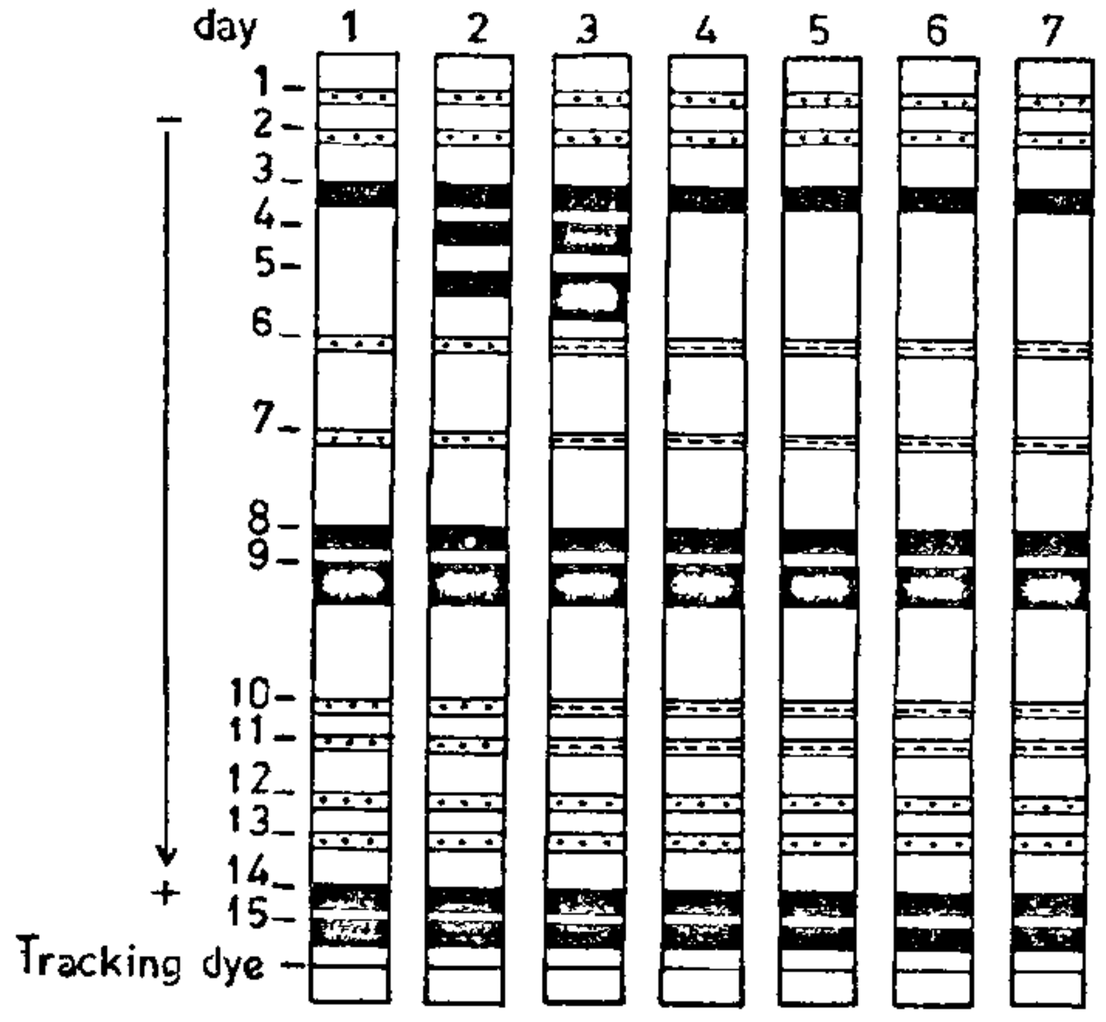

Figure 2. Fat body protein pattern during the first ovarian cycle of the adult female.

and disappear on day 5 postimplantation (figure 1). The ovariectomized insects have higher HPC than the controls and it does not decline on day 4 as it happen in the former (table 1). After implantation of ovary in ovariectomized females the HPC goes down almost to the level of normal controls while it

Table 1 *Effect of ovariectomy on the HPC during the first ovarian cycle*

Age (days)	HPC (g/100 ml) ± SE Control	Ovariectomized	*P* values
1	8.05 ± 0.66 (4)	8.09 ± 0.47 (4)	NS
2	11.39 ± 0.26 (3)	12.02 ± 0.40 (4)	NS
3	17.35 ± 0.63 (3)	16.47 ± 0.57 (4)	$P < 0.05$
4	6.24 ± 0.47 (5)	17.02 ± 0.87 (3)	$P < 0.001$
5	7.59 ± 0.46 (3)	16.88 ± 0.40 (4)	$P < 0.001$
6	8.46 ± 0.40 (4)	17.62 ± 0.42 (4)	$P < 0.001$
7	6.50 ± 0.30 (3)	16.42 ± 0.28 (3)	$P < 0.001$

Figures in parentheses indicate the number of observations.

remained unchanged in ovariectomized controls (table 2).

Since ovarian development largely depends upon the VG, ovariectomy was performed as early as in 2-day-old ultimate larval instar to see if it could interfere with the synthesis of these proteins. Since the operation has no effect either on FBPP or HPC, it indicates the absence of any inhibitory ovarian factor in this insect. The persistence of VG in the haemolymph of ovariectomized insects is apparently due to the lack of the ovaries that drain them and in the fat body possibly due to their inability to come out into the haemolymph, it being saturated with VG in the absence of ovaries. The same reason could be attributed to the lack of fluctuations in the HPC of the ovariectomized insects. However, the limit of 17 g/100 ml of protein concentration both in the control and ovariectomized insects (table 1) seems interesting in so far as it is suggestive of a built-in (genetic) mechanism that shuts off protein synthesis in the fat body once its level programme for synthesis has been achieved. A negative feedback as a possible cause of this phenomenon is ruled out since it can operate only in ovariectomized insects (in which it may be brought into play by the VG saturating the haemolymph) and not in the normal ones (where the question of saturation of haemolymph with the VG will not rise).

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Table 2 *Effect of ovary implantation on the HPC*

Days after implantation	HPC (g/100 ml) ± SE Control	Experimental	*P* values
1	17.06 ± 0.86 (4)	17.23 ± 0.96 (4)	NS
2	16.36 ± 0.56 (3)	16.82 ± 0.98 (3)	NS
3	16.28 ± 0.76 (4)	15.75 ± 0.90 (4)	NS
4	15.88 ± 0.45 (4)	12.68 ± 0.67 (4)	$P < 0.01$
5	15.39 ± 0.60 (5)	9.32 ± 0.52 (3)	$P < 0.001$
6	16.08 ± 0.70 (4)	8.23 ± 0.43 (4)	$P < 0.001$
7	16.23 ± 1.23 (4)	8.07 ± 0.41 (5)	$P < 0.001$

Figures in parentheses indicate the number of observations.

A REPORT ON FOLLICULAR CYST IN THE PITUITARY OF THE BAT, *HIPPOSIDEROS SPEORIS* (SCHNEIDER)

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ADENOHYPOPHYSIAL cell types in male and female bats of three species (*Hipposideros speoris*, *Pipistrellus ceylonicus chrysothrix* and *Cynopterus sphinx sphinx*) and seasonal variations in them according to