

HAEMATOLOGICAL STUDIES ON THE RED COTTON BUG, *DYSDERCUS KOENIGII*

This communication reports changes in total haemocyte count, differential haemocyte count and haemolymph volume during the maturation period of *Dysdercus koenigii*.

The bugs were reared in the laboratory at $28 \pm 1^\circ \text{C}$ and 5 insects were sacrificed at 24 hour interval for a period of five days and the haemolymph volume of the insects was measured by amaranth dye dilution method (Mordue and Goldsworthy)¹. Total haemocyte count (THC) per mm^3 at different time intervals in male and female insects was calculated using the method of Wheeler², Jones³ classification was used for

lymph accounted for 18% to 20% of the total body weight (see Table I).

The total haemocyte count was more or less steady throughout the 5 days. In both males and females, the prohaemocytes were always less than plasmatocytes. However, slight variations were noted (see Table I).

In males, the absolute number of haemocytes does not show much variation during maturation. However, in females, a rise in the absolute number of haemocytes was observed on the 3rd day which reaches its maximum on the 5th day.

A comparison of the total haemocyte count of the red cotton bug, with that of *Oncopeltus fasciatus*⁴

TABLE I
Comparative haemocyte count, differential count and absolute number of adult insects*

Age of insect	Sex	Weight of insect in mg	THC per mm^3	DHC in %		Haemolymph volume in μl	Absolute No. of haemocytes
				Prohaemocytes	Plasmatocytes		
Just emerged	Male	50	$12,000 \pm 500$	30	70	14 ± 0.20	1,68,000
	Female	90	$16,000 \pm 1500$	30	70	16 ± 1.0	2,56,000
1 day old	Male	60	$11,000 \pm 200$	35	65	15 ± 0.32	1,65,000
	Female	100	$14,000 \pm 1000$	35	65	18 ± 0.50	2,52,000
2 days old	Male	80	$10,500 \pm 200$	38	62	16 ± 1.00	1,68,000
	Female	120	$12,000 \pm 500$	38	62	20 ± 1.00	2,40,000
3 days old	Male	80	$10,500 \pm 300$	33	67	16 ± 0.50	1,63,000
	Female	150	$12,500 \pm 200$	33	67	28 ± 1.50	3,50,000
4 days old	Male	90	$10,000 \pm 500$	40	60	18 ± 0.30	1,80,000
	Female	190	$13,000 \pm 450$	40	60	32 ± 1.50	4,16,000
5 days old	Male	100	$10,000 \pm 350$	48	52	18 ± 1.00	1,80,000
	Female	200	$13,000 \pm 400$	48	52	38 ± 1.50	4,94,000

* Mean of five insects in all the experiments.

identification of haemocytes. However, for differential haemocyte count (DHC—prohaemocytes (germinal cells) and plasmatocytes (phagocytic cells) only were taken into consideration. Wheeler's² method was adopted for estimating the differential haemocyte count. Absolute number of haemocytes was calculated by combining the data of total haemocyte count and haemolymph volume.

The results are tabulated in Table I. In males, the blood volume showed gradual increase for the first two days and then again the 4th day, viz., the mating day. In female, from 1st to 5th day there was a steady increase in the blood volume and the rate of increase was much more pronounced than in males. In both males and females, the haemo-

shows that *Dysdercus koenigii* has a relatively high total haemocyte count.

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1. Mordue, W. and Goldsworthy, G. J., *Gen. Comp. Endocrinol.*, 1969, 2, 360.
2. Wheeler, R. E., *J. Insect Physical.*, 1963, 9, 223.
3. Jones, J. C., *Biol. Bull.*, 1965, 129 (2), 282.
4. Feir, D., *Nature*, London, 1964, 202, 1136.