

Figure 3. Karyogram of *R. luctus*

the maximum number of resultant metacentrics was only 3 pairs^{2,3}. *R. luctus*, in contrast to all other species of *Rhinolophus*, shows a low diploid number where all the members of the chromosome complement except Y are biarmed. However, the FN remains unaltered at 60 as in other species. Therefore it can be assumed that extensive centric fusions, probably fifteen, have taken place involving all the autosomes which might have been telocentric in the primitive condition. Additionally, the X chromosome also has the common submetacentric condition. Thus *R. luctus* enjoys a unique position among all the species of this genus in terms of its chromosome morphology.

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1. Baker, R. J., *Biology of bats* (ed.) W. A. Wimsutt (New York, Academic Press), 1970, p. 65.
2. Capanna, E., *Experientia*, 1967, 24, 624.

3. Capanna, E. and Romanini, M. G. M., *Caryologia*, 1971, 24, 471.
4. Dulic, B., *Bull. Sci. Cons. Acad. PRF Yugoslavia*, 1967, 12, 63.
5. Harada, M., *La Kromosomo*, 1973, 91, 2885.
6. Harada, M., Minezawa, M., Takada, S., Yenbutra, S., Nunpakdee, P. and Othani, S., *Caryologia*, 1982, 35, 269.
7. Romanini, M. G. M., Pellicciari, C., Bolchi, F. and Capanna, E., *Mammalia*, 1975, 29, 675.
8. Tsuchiya, K., *J. Mamm. Soc., Jpn*, 1971, 5, 114.
9. Tsuchiya, K., *Proc. Jpn Acad.*, 1979, 55, 191.
10. Levan, A., Fredga, K. and Sandberg, A. A., *Hereditas*, 1964, 52, 201.

EFFECT OF A PLANT JUVENOID ON THE VITELLOGENIN SYNTHESIS IN THE BUG, *DYSDERCUS KOENIGII* FABR.

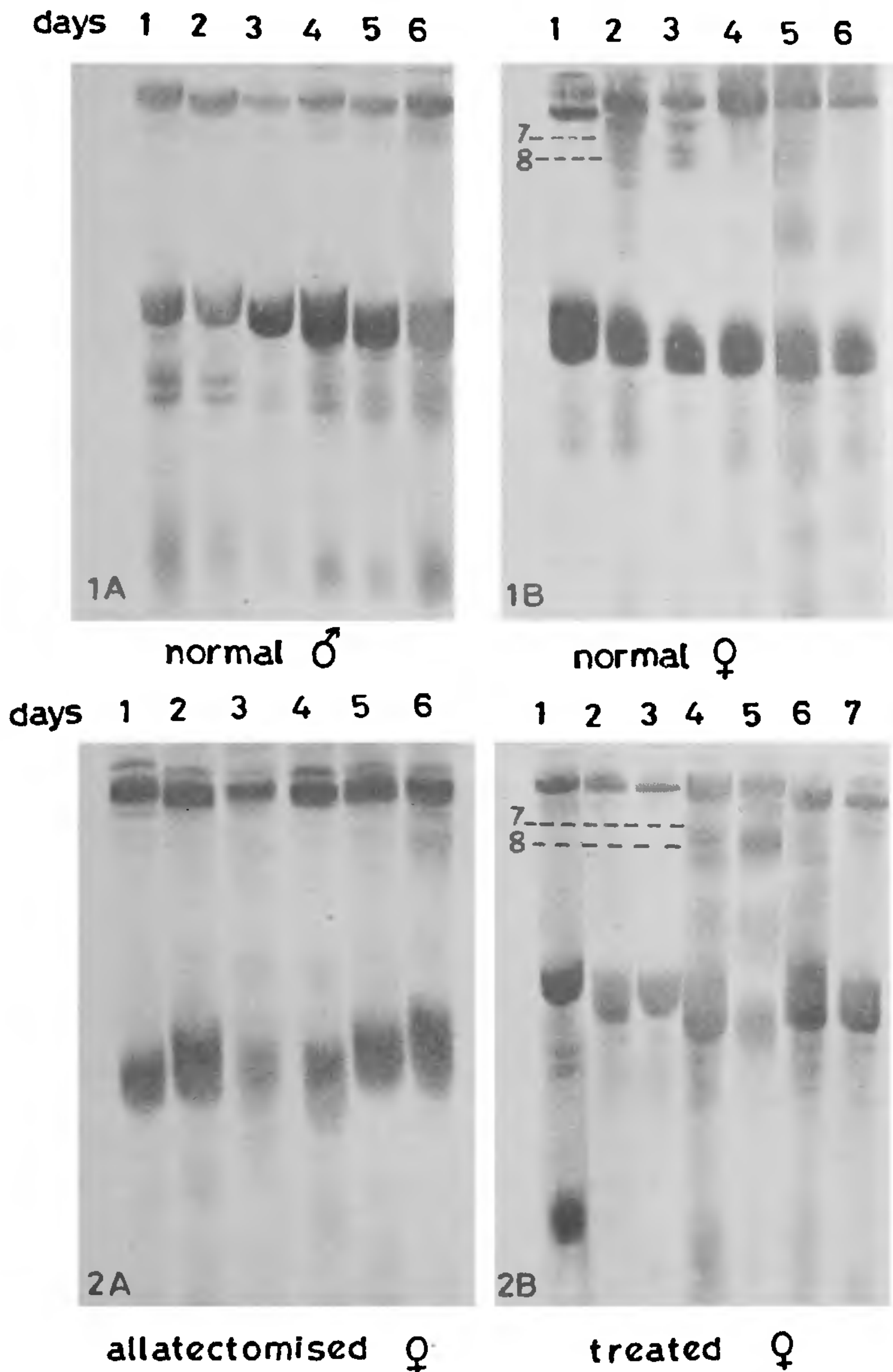
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ALTHOUGH juvenile hormone¹⁻⁵ and its analogues (juvenoids)⁶⁻¹¹ including plant juvenoids¹²⁻¹⁴ have been shown to possess gonadotropic property, there is as yet no report to show that plant juvenoids specifically regulated vitellogenin (VG) synthesis. In this note, we report such a property in the essential oil extracted from the Australian bottle brush, *Callistemon lanceolatus*.

The haemolymph samples of the adult male and female and allatectomised females topically treated with 200 µg oil of *C. lanceolatus* in 1 µl acetone (experimentals) and with 1 µl acetone alone (controls) were electrophoresed by the method of Bhola⁵ at 1 day intervals for 6-7 days (equivalent to the first ovarian cycle of the female).

Electropherograms of the haemolymph proteins of the male (figure 1A) and female (figure 1B) of *D. koenigii* show that the latter have 2 additional protein bands (nos. 7 and 8) compared to the former. On the basis of the absence of these bands and other criteria⁵, these fractions have been regarded as VG or female specific proteins in this insect. They appear on day 2, become concentrated on day 3, decline on day 4 and are reduced to traces on the remaining two days of the ovarian cycle. Allatectomy blocked the synthesis of VG



Figures 1–2. 1. Electropherograms of the normal adult male (A) and female (B) showing the presence of VG (band 7 and 8) in the female alone. 2. Electropherograms of the allatectomized adult female showing absence of VG (A) and their reappearance after application of the oil of *C. lanceolatus* (B).

which disappeared from the haemolymph (figure 2A) while topical administration of the oil of *C. lanceolatus* induced their reappearance (figure 2B). Whereas, most natural and synthetic juvenoids have been shown to possess gonadotropic property, there is only one such report for plant juvenoids¹³ and that too is restricted to gross ovarian maturation. In these studies, we have shown that the oil of *C. lanceolatus* restores VG in the haemolymph of allatectomised insects that lacked them. In our earlier paper¹⁴, we showed several morphogenetic effects of this oil and therefore, the present finding imparts a truly juvenoid status to it.

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1. Wilkens, J. L., *J. Insect Physiol.*, 1969, **15**, 1015.
2. Clift, A. D., *J. Insect Physiol.*, 1971, **17**, 601.
3. Bell, W. J. and Barth, R. H., *J. Insect Physiol.*, 1970, **16**, 2303.
4. Bell, W. J. and Barth, R. H., *Nature New Biol.*, 1971, **230**, 220.
5. Bholra, R. K., *Ph.D. thesis, Banaras Hindu University*, 1981.
6. Emmerich, H. and Barth, R. H., *Z. Naturforsch. Tubingen*, 1968, **B23**, 1019.
7. Engelmann, F., *Science*, 1969, **165**, 407.
8. Engelmann, F., *Arch. Biochem. Biophys.*, 1971, **145**, 439.
9. Adams, T. S. and Eide, P. E., *Gen. Comp. Endocrinol.*, 1972, **18**, 12.
10. Kunkel, J. G., *J. Insect Physiol.*, 1973, **19**, 1285.
11. Nijhout, M. M. and Riddiford, L. M., *Biol. Bull. (Woods Hole)*, 1974, **146**, 337.
12. Prabhu, V. K. K., In: *Insects and host specificity* (ed. T. N. Ananthakrishnan), Macmillan, India, 1977.
13. Gopakumar, B., Ambika, B. and Prabhu, V. K. K., *Entomon*, 1977, **2**, 259.
14. Katiyar, R. L. and Srivastava, K. P., *Entomon*, 1982, **7**, 463.

ANNOUNCEMENT

FIRST NATIONAL SYMPOSIUM ON COMPARATIVE ENDOCRINOLOGY OF INVERTEBRATES

The First National Symposium on Comparative Endocrinology of Invertebrates will be held during 24–26 January, 1985, at the Zoology Department, Marathwada University, Aurangabad. The aim of the Symposium is to evaluate the existing scientific knowledge in the field of Comparative Endocrinology of Invertebrates and to identify the needs of research and development in this field.

Topics of the Symposium are: (1) Histology and Histochemistry of Neurosecretory system; (2) Hormonal control of Reproduction—Comparative approach; (3) Mould, Growth and Metamorphosis; (4) Endocrine control of respiration, osmoregulation and metabolism; (5) Physiology of

neurosecretory cells and chemistry of invertebrate hormones.

Those who intend to participate must submit abstract not exceeding 250 words before *October 31, 1984*.

A registration fee of Rs. 75/- will be charged from each participant to cover conference materials, lunch and refreshments. University Grants Commission, New Delhi, Comparative Endocrine Society of India, Marathwada University, Aurangabad are sponsoring the Symposium.

Further particulars may be had from the Convenor, Prof. R. Nagabhusanam, Department of Zoology, Marathwada University, Aurangabad 431 004.