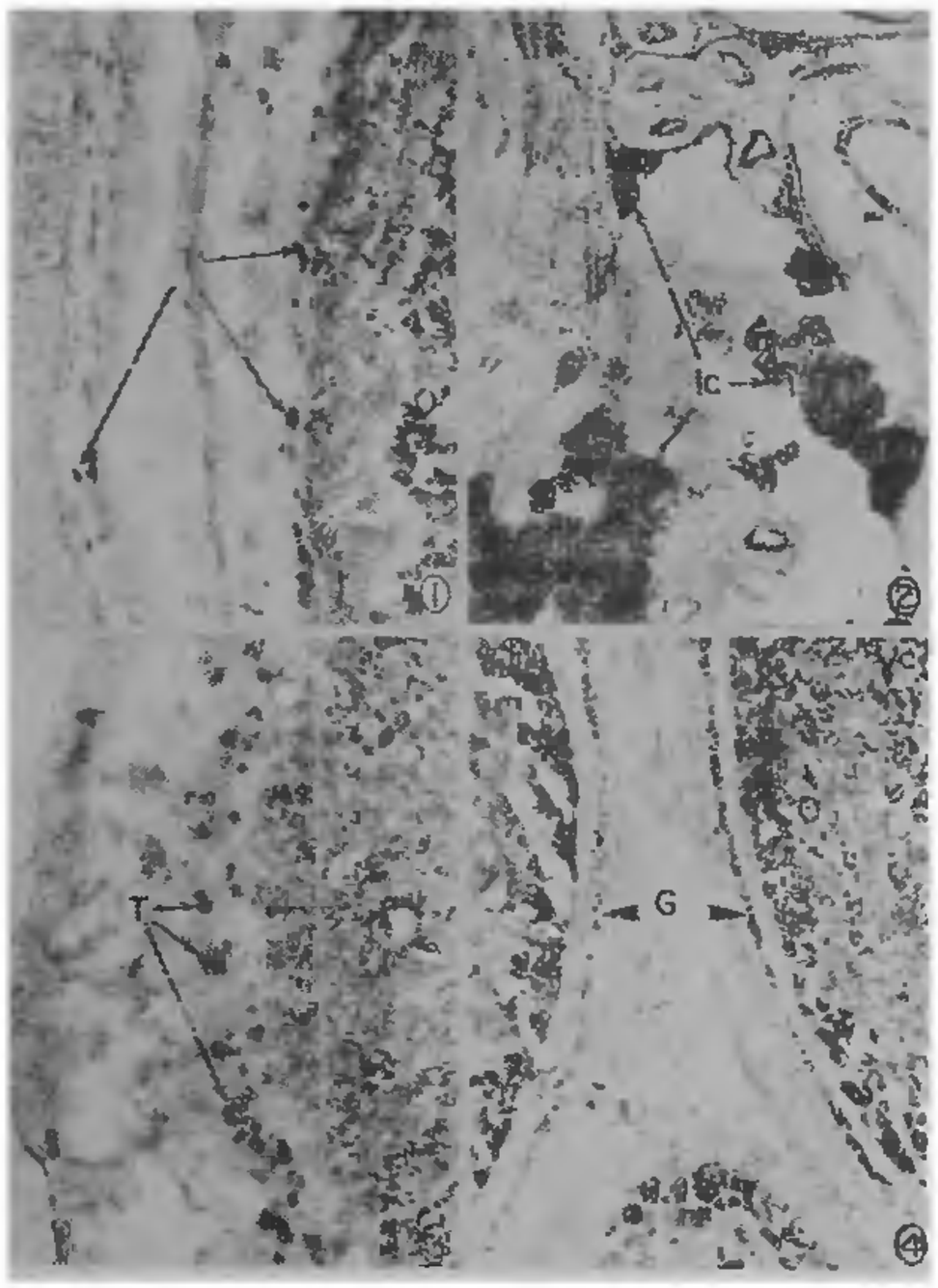

FIGS. 1–4. Figs. 1–3. Cryostat sections of the ovary of *V. monitor* showing Δ^5 3β-HSDH activity (Pregnenolone as substrate) in Fig. 1. granulosa cells (G), theca interna cells (T) and cortical ooplasm (O) of the ovarian follicle. Fig. 2. Interstitial cells (Ic) of ovarian stroma and Fig. 3. Theca interna (T) and luteal cell mass (Lc) of corpus luteum. Note strong activity in the theca and the interstitial cells, × 100. Fig. 4. Cryostat section of the ovary of *M. trivittata* showing Δ^5 3β-HSDH activity (Pregnenolone as substrate) in granulosa cells (G) and cortical ooplasm (O) of ovarian follicle, × 150.

In addition to these cellular sites, cortical ooplasm of ovarian follicles in both species of lizards also exhibit enzyme activity similar to previous studies[10,11]. But the steroidogenic ability of the follicular ooplasm is not yet established in reptiles.

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Department of Post-Graduate Studies and Research in Zoology,
University of Mysore, Manasagangotri,
Mysore 570 006, India, *November* 23, 1979.

B. M. SEKHARAPPA.
H. B. DEVARAJ SARKAR.

1. Guraya, S. S., *Int. Rew. Cytol.*, 1976, 44, 365.
2. Ozon, R., In: *Steroids in Non-mammalian Vertebrates*, Ed. Iller, D. R., Academic Press, New York, 1972, p. 390.
3. Shivakumar, G. R., Sarkar, H. B. D. and Sekharappa, B. M., *Curr. Sci.*, 1979 *a*, 48, 606.
4. —, — and —, *Ind. J. Exp. Biol.*, 1979 *b*, 17, 826.
5. Baillie, A. H., Ferguson, M. M. and Mck Hart, D., *Development in Steroid Histochemistry*, Academic Press, New York, 1966.
6. Blackshaw, A. W., In *The Testis*, Eds. Johnson, A. C., Gomes, W. R. and Vandermark, N. L., Academic Press, New York, 1970, 2, 73.
7. Morat, *Ann. Biol. Besse*, 1969, 4, 1.
8. Callard, I. P., Chan, W. W. and Pottes, M. A., *Amer. Zool.*, 1972, 12, 273.
9. Yaron, Z., *Gen. Comp. Endocrinol.*, Supp., 1972, 3, 668.
10. Gouder, B. Y. M. and Nadkarni, V. B., *Ind. J. Exp. Biol.*, 1976, 14, 647.
11. Saxena, P. K., *Ibid.*, 1977, 15, 1202.
12. Sekharappa, B. M. and Sarkar, H. B. D., *Int. Symp. Steroids and their Mechanism of Action in Non-Mammalion Vertebrates, Capri*, 1979.

CHROMOSOMAL STUDY IN THE VIVIPAROUS ALATOID FEMALES OF *TINOCALLIS KAHAWALUOKALANI* (KIRKALDY) (HOMOPTERA : APHIDIDAE)

OF some 4,000 species of aphids, the tiny insect pests, hitherto taxonomically known, cytological investigations have only been carried out on some 390 odd species throughout the globe[1–9]. Out of the 563 species of aphids recorded in India[10], the chromosomes of some 17 species have so far been studied[5–9,11]. Cytological investigations on the mitotic chromosomes of *Tinocallis kahawaluokalani*, the species under present report, have not been carried out earlier.

Young embryos from the viviparous alatoid females of *Tinocallis kahawaluokalani* (Kirkaldy), collected from the host plant *Lagarostroemia indica* at Kalyani, West Bengal, were subjected to the modified squash method[12] for studying the somatic chromosomes.

Little or no discernible structures could be observed in the interphase nuclei. At prophase, intermingled chromosomal threads without any individuality were found. At prometaphase (Fig. 1), 8 long randomly distributed chromosomes were observed. The chromosomes were clear and compact at metaphase (Fig. 2, PM. 1) when they were measured (Table I) and their karyotype (Fig. 5) was prepared, by arranging the homomorphic pairs in decreasing order of size. The chromosomes ranged between 3·8 and 2·1 μ from the longest to the shortest. The difference in size between consecutive pairs of chromosomes was 0·4 μ between 1st and 2nd pairs, 0·8 μ between 2nd and 3rd pairs and 0·5 μ between 3rd and 4th pairs (Table I). With

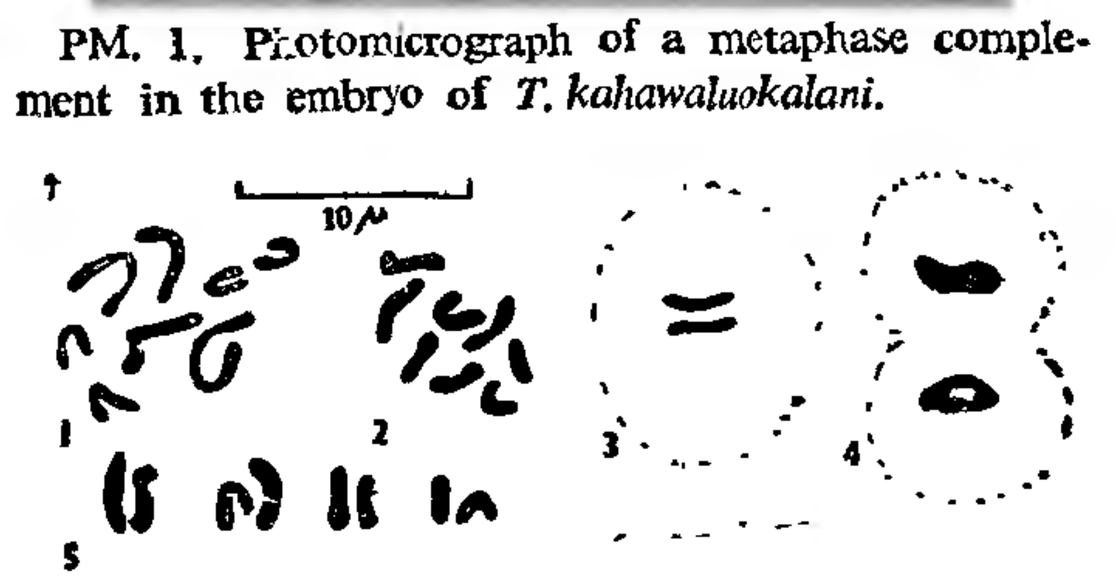
the progress of metaphase, the chromosomes underwent further condensation so as to appear as dots before finally fusing with one another to form a sheet-like chromatin mass. As anaphase (Fig. 3) ensued, the daughter chromosomes separated as two sheet-like masses moving poleward in the parallel manner, characteristic of holokinetic chromosomes. At telophase (Fig. 4), each chromatin body reached pole and enlarged to form spherical mass before fading out to enter into the resting stage.

TABLE I

Mean length in micra and relative percentage lengths of chromosomes in T. kahawaluokalani *expressed haploid set*

Chromosome No.	Mean length in micra	Relative percentage length
1	3·8	31·9
2	3·4	28·5
3	2·6	21·8
4	2·1	17·6

PM. 1. Photomicrograph of a metaphase complement in the embryo of *T. kahawaluokalani.*



FIGS. 1–5. Chromosomes in the embryos of *T. kahawaluokalani* : Prometaphase (Fig. 1); Metaphase (Fig. 2); Anaphase (Fig. 3); Telophase (Fig. 4); Karyotype prepared from metaphase (Fig. 5).

So far as the authors are aware, this is the first report on the chromosomes of *T. kahawaluokalani*. The only other species of *Tinocallis, viz., ulmifolii* (Monell), studied cytologically, also had 8 chromosomes in their somatic complements. The karyotypes in these two species broadly resembled each other, only the difference in size between the 2nd and 3rd pairs of chromosomes was strikingly greater in *T. ulmifolii* than in *T. kahawaluokalani*. As such, mutual exchange through fission/fusion seems to have the key role in the evolution of the karyotypes in these two species as has been suggested for many other species of aphids[1–2].

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Department of Zoology, (MISS) S. DATTA,
University of Kalyani,
Kalyani 741 235, A. R. KHUDA-BUKHSH.
West Bengal, India.
February 5, 1980.

1. Robinson, A. G. and Chen, Y. H., *Canad. J. Zool.*, 1969, **47**, 511.
2. Kuznetzova, V. G., *Ent. Obozr.*, 1973, **52**. 116.
3. Gut, J., *Genetica*, 1976, **46**, 279.
4. Blackman, R. L., *Chromosoma*, 1976, **56**, 393.
5. Khuda-Bukhsh, A. R. and Datta, S., *Proc. 3rd All Ind. Cong. Cytol. and Genet.*, 1978 (in Press).
6. —, *Proc. Sym. on Recent Trends in Aphidological Studies*, 1979 (in press).
7. —, *Proc. 67th Ind. Sci. Cong.*, 1980, pt. 3.
8. Kurl, S. P. and Misra, S. D., *Proc. 3rd All Ind. Cong. Cytol. and Genet.*, 1978 (in press).
9. Manna, G. K., *Proc. Symp. on Recent Trends in Aphidological Studies*, 1979 (in press).
10. Ghosh, A. K., *J. Bombay Nat. Hist. Soc.*, 1977, **74**, 29.
11. Behura, B. K., *Proc. 65th Ind. Sci. Cong.*, 1978, **2**, 21.
12. Khuda-Bukhsh, A. R. and Datta, S., *J. Zool. Res.* (in press).