inhibits muscle histolysis in 44·4% completely and in 22·2% partially as is evident from our data. This confirms that JH plays a positive role in flight muscle histolysis in *D. cingulatus* though there are factors other than JH which induce degeneration of flight muscles in this animal.

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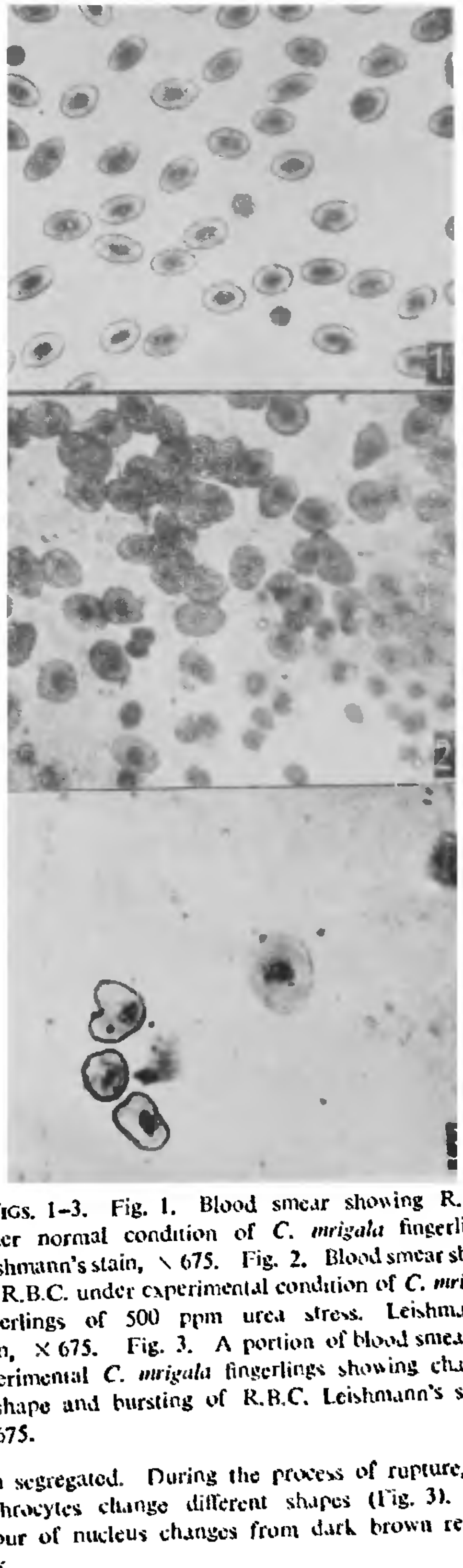
1. Bowers, W. S., Ohta, T., Clecre, J. S. and Marsella, P. A., *Science*, Wash., 1976, **193**, 542.
2. Unnithan, G. C., Nair, K. K. and Bowers, W. S., *J. Insect. Physiol.*, 1977, **23**, 1081.
3. Nair, C. R. M. and Prabhu, V. K. K., *Entomon.*, 1979, **4**, 285.
4. Jalaja, M. and Prabhu, V. K. K., *Ibid.*, 1973, **1**, 43.
5. Edwards, F. J., *J. Insect Physiol.*, 1969, **15**, 2013.

ERYTHROCYTIC ABNORMALITIES DUE TO UREA STRESS IN *CIRRHINUS MRIGALA* (HAM.) FINGERLINGS

SINCE the work of Gillette *et al.*[1] the study of toxicity of urea in relation to fishes attracted a number of workers[2–5]. A study of blood media relation of urea has shown 1 : 3 ratio[6] and low biodegradation rate[7]. The presence of urea in the blood for longer period may create some abnormalities in the blood. Therefore, the morphological erythrocytic abnormalities have been observed in the fingerlings of *C. mrigala*.

The fingerlings of *C. mrigala* collected from Gujartal Fish Farm, Jaunpur (India), were acclimatized for a week under laboratory conditions and divided into two groups. One group was kept under 500 ppm urea stress and another was placed in tap water to serve as control. On 5th day the blood smears were prepared from each group and stained in Leishmann's stain.

Polycythemia was reported due to urea stress in *C. punctatus*[8]. But the present work shows that due to urea stress the shape of R.B.C. becomes spherical (Fig. 2) from oval (Fig. 1). The nuclear and cellular hypertrophy and bursting occurred (Figs. 2 and 3). The erythrocytic agglutination has been observed (Fig. 2) and due to rupture the pink nuclei has been seen segregated. During the process of rupture, the erythrocytes change different shapes (Fig. 3). The colour of nucleus changes from dark brown red to pink.



FIGS. 1–3. Fig. 1. Blood smear showing R.B.C. under normal condition of *C. mrigala* fingerlings. Leishmann's stain, × 675. Fig. 2. Blood smear showing R.B.C. under experimental condition of *C. mrigala* fingerlings of 500 ppm urea stress. Leishmann's stain, × 675. Fig. 3. A portion of blood smear of experimental *C. mrigala* fingerlings showing changes in shape and bursting of R.B.C. Leishmann's stain, × 675.

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1. Gillette, L. A., Miller, D. L. and Redman, H. E., *Sew. Indust. Wastes*, 1952, **24**, 1397.
2. Silva, C. D. and Verlencar, X. N., *Mahasagar*, 1974, **7** (3–4), 177.
3. Tripathi, V., Verma, C. B. and Verma, H. S, *Ind. J. Zoot.*, 1974, **15** (1), 47.
4. Sriwastwa, V. M. S. and Kumar, A., *Geobios*, 1977, **4** (5), 224.
5. Srivastava, G. J. and Srivastava, O. P., *Proc. Symp. Environ. Biol.*, 1979, p. 183.
6. Sriwastwa, V. M. S. and Srivastava, D. K., *Matsya*, 1977, **3**, 27.
7. —and—, *Proc. Symp. Environ. Biol.*, 1979, p. 191.
8. Pandey, B. N., Chanchal, A. K., Singh, S. B., Prasad, S. and Singh, M. P., *Proc. Symp. Environ. Biol.*, 1979, p. 343.

NEW RECORD OF *TRICHOGRAMMATOIDEA BACTRAE* NAGARAJA (HYM. : TRICHOGRAMMATIDAE) AS AN EGG PARASITE OF THE CASTOR SEMILOOPER *ACHAEA JANATA* (LEP : NOCTUIDAE)

THE semilooper, *Achaea janata* L. is a severe pest of castor. When the incidence of this pest was noticed during August–September 1979, at the Agricultural College Farm, Dharwad, daily collections of immature stages of the pest were made at random from plots free from insecticide treatment with a view to observe different species of natural enemies present in the area. A species of Trichogrammatid identified as *Trichogrammatoidea bactrae* Nagaraja was reared from the eggs of *A. janata*. Nagaraja[1], while describing *T bactrae* gives fourteen lepidopterous species which include ten species from India and one each from Java, Malaysia, Pakistan and Taiwan as its host. So far there is no record of *T. bactrae* on *A. janata* and therefore it is being reported here for the first time. Percentage of parasitization of *T. bactrae* in the field ranged from 9·1 to 14·7 during the period of observation. In the laboratory, culture of this parasite could be easily built up on the eggs of *Corcyra cephalonica* Staint. It was found to readily accept the eggs of *Heliothis armigera* (Hubner) and *Earias vittella* (Fabricius) also under laboratory conditions. Duration of a life cycle in these three hosts ranged from 9 to 11 days. Possibilities of utilising this parasite in the biological control of castor semilooper and cotton bollworms are being explored.

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1. Nagaraja, H., *Oriental Insects*, 1978, **12** (4), 489.

CANCER RESEARCH INSTITUTE, BOMBAY

The Cancer Research Institute, Bombay, will conduct a training course on Tumour Immunology from January 27 to February 14, 1981. Application forms and further particulars can be had from the Administrative Officer of the Institute either in person or by sending a self-addressed 45 Paise stamped 23 cm × 10 cm envelope by 31st October, 1980. Applications duly sponsored and completed in all respects should reach the Institute by 15th November, 1980 at the latest.

SEMINAR AT CENTRAL SALT RESEARCH INSTITUTE, BHAVNAGAR

A two-day Seminar on Exploitation of Sun Sea and Shore—Retrospect and Prospect will be held at Central Salt Research Institute, Bhavnagar, India, on 30th and 31st December 1980. It is also proposed on this occasion to felicitate Dr. J. D. Mehta (present Director of C.S. and Marine Chemicals Research Institute, Bhavnagar) who will be retiring by the end of this year. For details please contact Shri K. D. Padia, Member Secretary of the Seminar, Central Salt and Marine Chemicals Research Institute, Waghawadi Road, Bhavnagar 364 002.