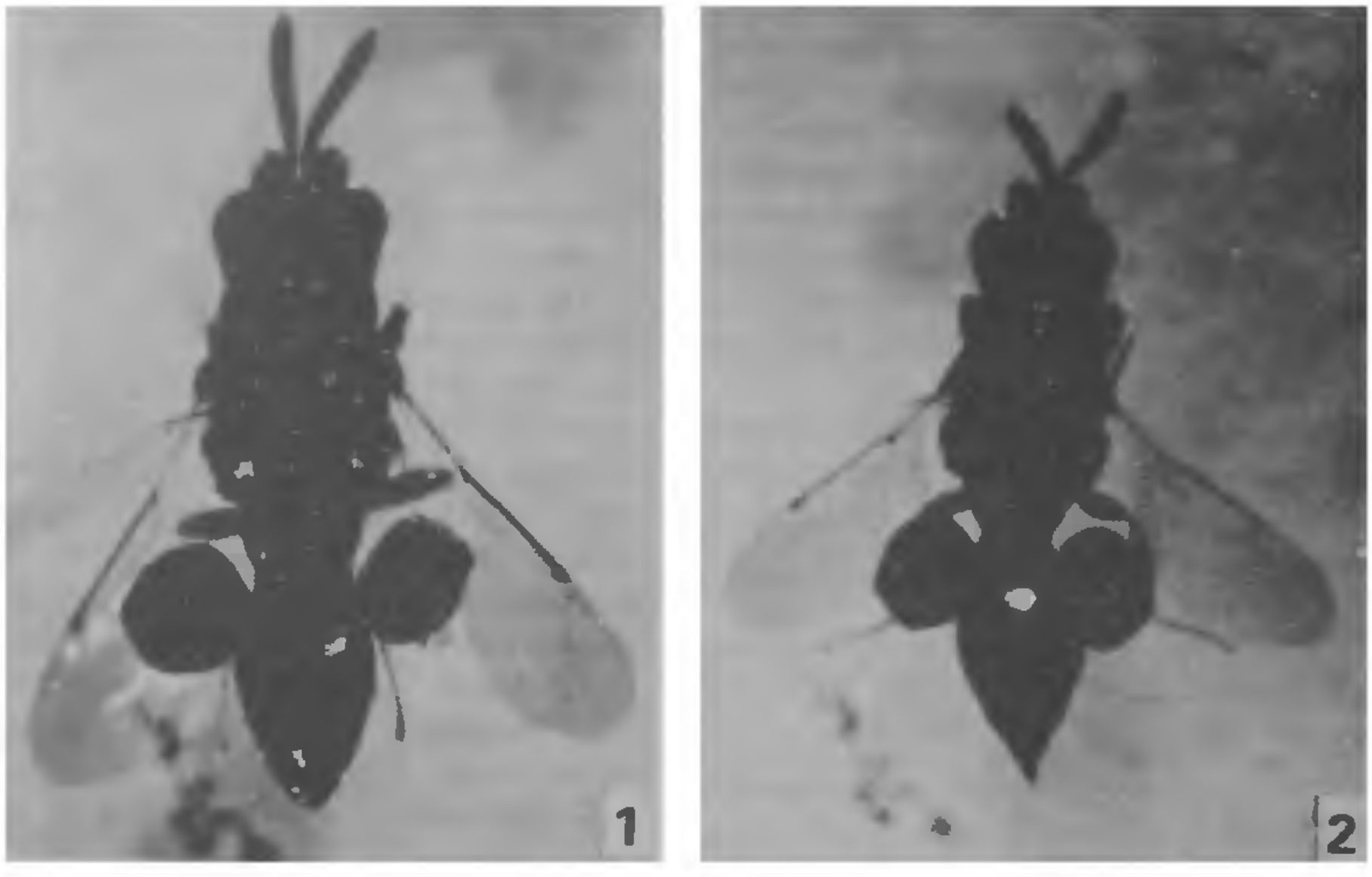

Figures 1 and 2. 1. Adult male fly of *Dirhinus anthracia*, and **2.** Adult female fly of *Dirhinus anthracia*.

Investigations on various aspects of *D. anthracia* are in progress to exploit it as a biological control agent to minimize the uzifly population.

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18 September 1987

1. Mukherjee, N. G., *Handbook of sericulture*, Bengal Secretariat Book Dept., Calcutta, 1919, p. 296.
2. Gosh, E. C., *Silk production and weaving in India*, CSIR Monograph, Delhi, 1949, p. 61.
3. Jolly, M. S., *Uzifly: Its identification, prevention and control*, Central Sericultural Research and Training Institute, Mysore, 1981, p. 1.
4. Kasturi Bai, A. R., Mahadevappa, D., Nirmala, M. R. and Jyothi, H. K., *Curr. Sci.*, 1986, **55**, 1038.
5. Pradip Kumar, Venkata Reddy, V., Samson, M. V. and Jolly, M. S., *Curr. Sci.*, 1986, **55**, 1040.
6. Veeranna, G., Nirmala, M. R. and Mahadevappa, D., *Curr. Sci.*, 1987, **56**, 1031.
7. Veeranna, G., Nirmala, M. R. and Mahadevappa, D., *Sericologia*, 1988, **28**, 227.

VIBRIO CHOLERAE 01 AND NON-01 IN SHRIMP "VEIN"—A PRELIMINARY STUDY TO ASSESS ANY POSSIBLE INCIDENCE

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THE isolation of *Vibrio cholerae* from shrimps and the consequent rejection of a few consignments by Japan have significantly improved the awareness of the seafood industry about this pathogen. Several queries have been raised about the incidence, source and viability of this organism in marine products.

Since the majority of the consignments rejected by the Japan Quarantine Authorities happened to be headless shrimps, there was a suspicion among some processors that the vein present in the headless shrimps harbours *V. cholerae*. Since no data were available on this aspect, studies were carried out at the Central Institute of Fisheries Technology, Cochin, and the result of the preliminary study is discussed in this paper.

Shrimps harvested from filtration ponds (Chemeenkettu) situated at Parur (Cochin) were used. Twenty-five grams of veins colected from about 100 headless shrimps (*P. indicus* or *P. monodon* of size grade 31/35, 36/40 and 41/50 per lb) constituted one sample.

The samples (32 in number) were collected from a processing unit at Cochin. The veins from more than 3200 shrimps were tested in this study. Samples were tested for *V. cholerae* according to the procedure recommended by Iyer *et al*[1]. Neither *V. cholerae* 01 nor *V. cholerae* non-01 could be isolated from any of the samples. From the present study it can be concluded that the veins in headless shrimps collected from filtration ponds do not contain *V. cholerae*. This is perhaps the first investigation of this type, and no data are available for comparison.

The authors are grateful to the Marine Products Export Development Authority for financial assistance. They are thankful to the processing units at Cochin for their co-operation in drawing the samples.

26 October 1987; Revised 12 May 1988

1. Iyer, T. S. G., Gangadharan, P. and Shenoy, A. S., *Report of the task force on preparation of manual for detection of vibrio cholerae in shrimps*, 1986.

TERMINATION OF EGG DIAPAUSE IN THE SILKWORM, *BOMBYX MORI* WITH HOT WATER TREATMENT

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An attempt has been made to terminate egg diapause on commercial scale in the silkworm, *Bombyx mori* by hot water treatment. The effect of hot water was studied in the eggs of Hosa Mysore (a polyvoltine race which occasionally lays diapause eggs), Daizo (an intermediate strain which lays about 70% diapause and 20–30% non-diapause egs), Chinese type bivoltine strains KA and NB_7 (which spin oval cocoons) and Japanese type bivoltine strains NB_{18} and NB_4D_2 (which spin dumbbell-shaped cocoons) which lay 100% hibernating egs. Eggs were dipped in hot water at 56°C for 4, 5, 6, 7 and 8 sec duration. Eggs treated by the conventional hydrochloric acid of 46°C with a specific gravity of 1.075 for 4–5 min were maintained as the control. In both cases, the eggs were treated within 24 h of oviposition.

All the six strains responded differently for different durations of hot water treatment. In Hosa Mysore, the diapause was terminated successfully (89.6% to 94.1%) after 4–6 sec. In Daizo, 4 and 5 sec treatments were effective in terminating the diapause. An interesting feature of hot water treatment in polyvoltine strains is that in layings where both diapause and non-diapause eggs are found, the hot water treatment caused normal hatchability of the non-diapause egs also, whereas these eggs in hot hydrochloric acid could not hatch.

Among bivoltine strains, KA and NB_7 showed maximum hatchability of 95.6% and 86.9% respectively at 4 sec duration. Longer durations of 6, 7 and 8 sec caused embryonic mortality in both these strains. The Japanese type strains NB_{18} and NB_4D_2 gave good response at all the levels of treatments. Maximum hatchability in NB_{18} (96.5%) was found at 4 sec treatment and in NB_4D_2 (96.5%) at 5 sec treatment. The comparative response of different strains to hot water is presented in figure 1.

From this study, it is clear that hot water could be

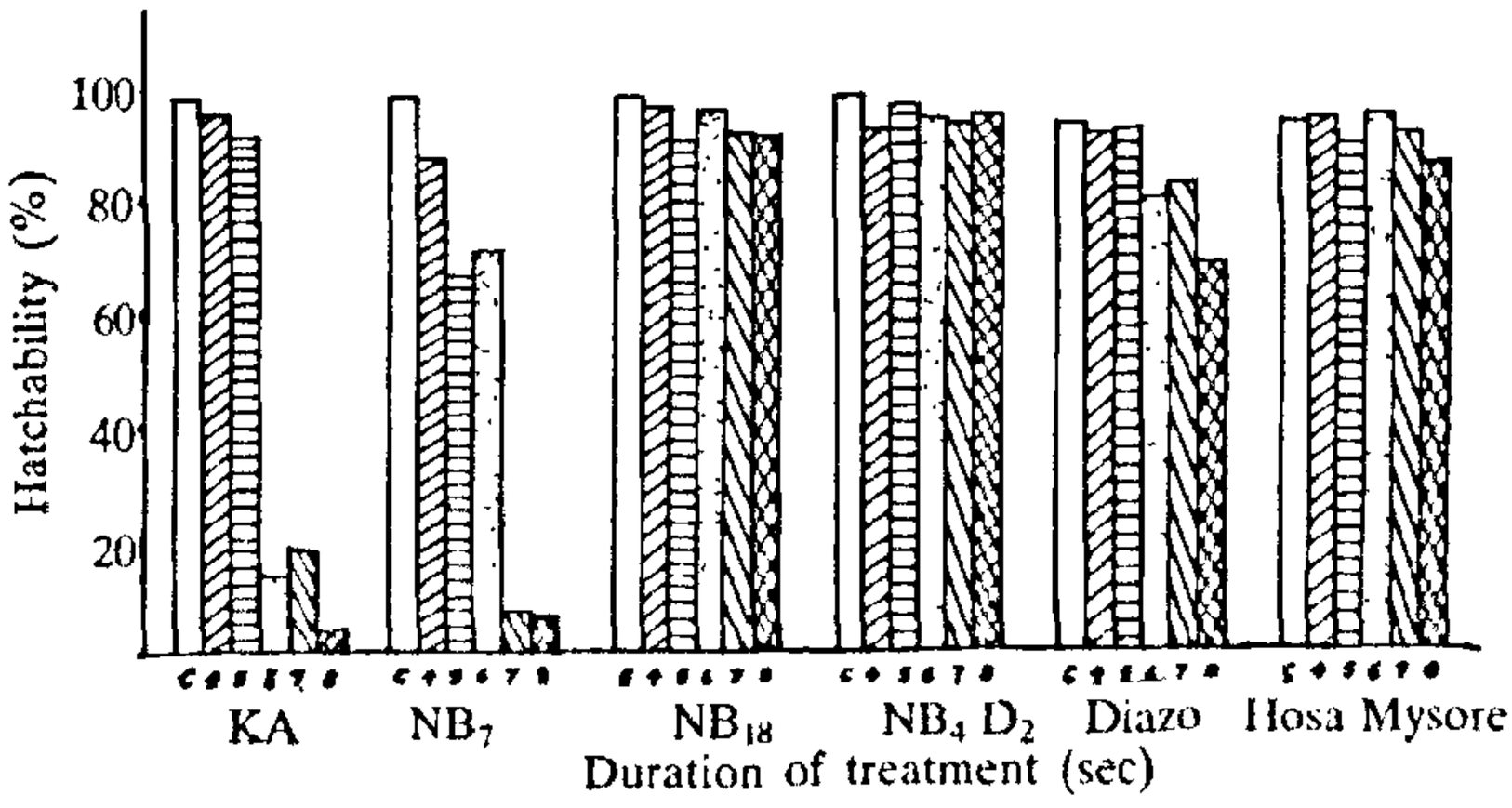

Figure 1. Diagram showing per cent change in hatchability in the eggs of the silkworm, *Bombyx mori* following treatment with hot water. Eggs treated by hot hydrochloric acid were taken as control.

successfully used on a commercial scale to terminate diapause in the silkworm. This method is simple, safe and economical and only requires precise maintenance of water temperature and duration of treatment.

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ELECTRON MICROSCOPIC STUDIES ON THE EFFECT OF DEHYDRATION–HYDRATION ON THE CORPORA ALLATA OF THE COCONUT PALM BEETLE *ORYCTES RHINOCEROS* (COLEOPTERA:SCARABAEIDAE)

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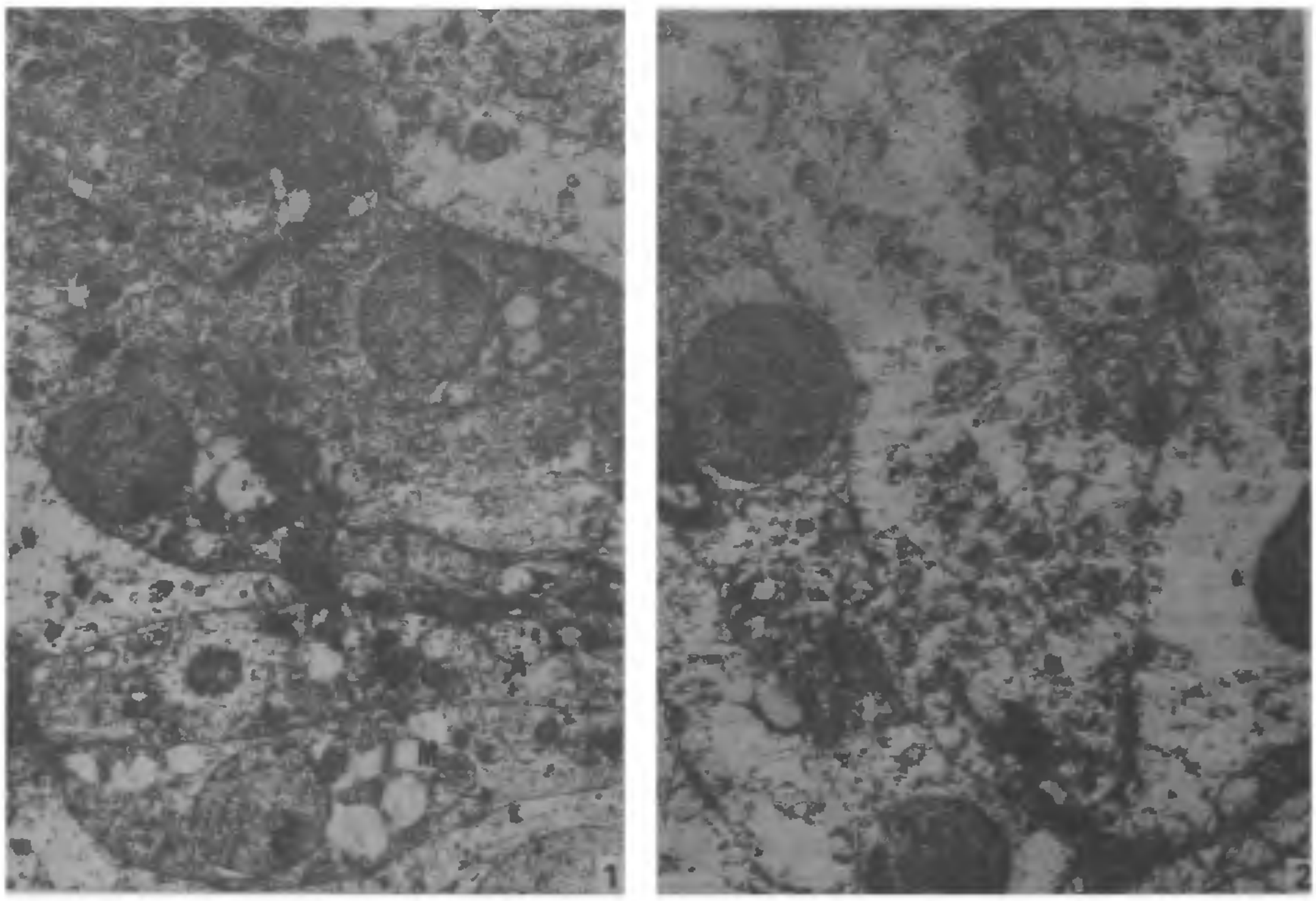
THE median neurosecretory cells of the larval brain of *Oryctes rhinoceros* secrete a diuretic principle in response to hydration stress[1,2]. It has also been reported that the 'A' type neurosecretory cells of the ventral nerve cord of this insect are involved in the secretion of an antidiuretic hormone in response to dehydration stress[3]. The effects of dehydration–hydration stresses on the corpora allata (CA) of *O. rhinoceros* were studied at the ultrastructural level and the results are reported here.

Third (final) instar larvae of *O. rhinoceros* were employed in the study. The methods used for inducing dehydration and hydration in the animals have been described earlier[1]. The CA were dissected out in insect saline three days after dehydration or hydration treatments. The tissue was fixed in 3% glutaraldehyde in 0.1 M cacodylate buffer, pH 7.2, and postfixed in 1% osmium tetroxide. Fixed tissues were dehydrated in acetone series and embedded in Araldite 502 resin. Ultrathin sections were stained in uranyl acetate and lead citrate and observed in a Hitachi transmission electron microscope.

Light microscopic studies revealed that in hydrated animals, the volume of both gland and cell



Figures 1 and 2. **1.** Electron micrograph of CA of dehydrated animal showing prominent nuclei and dense cytoplasm containing plenty of mitochondria. Bar = 3 μm. **2.** Electron micrograph of CA of hydrated animal showing cells in a state of disintegration. Bar = 3 μm. N, Nucleus; G, Golgi body; M, Mitochondria; A, Axon of neurosecretory cell.