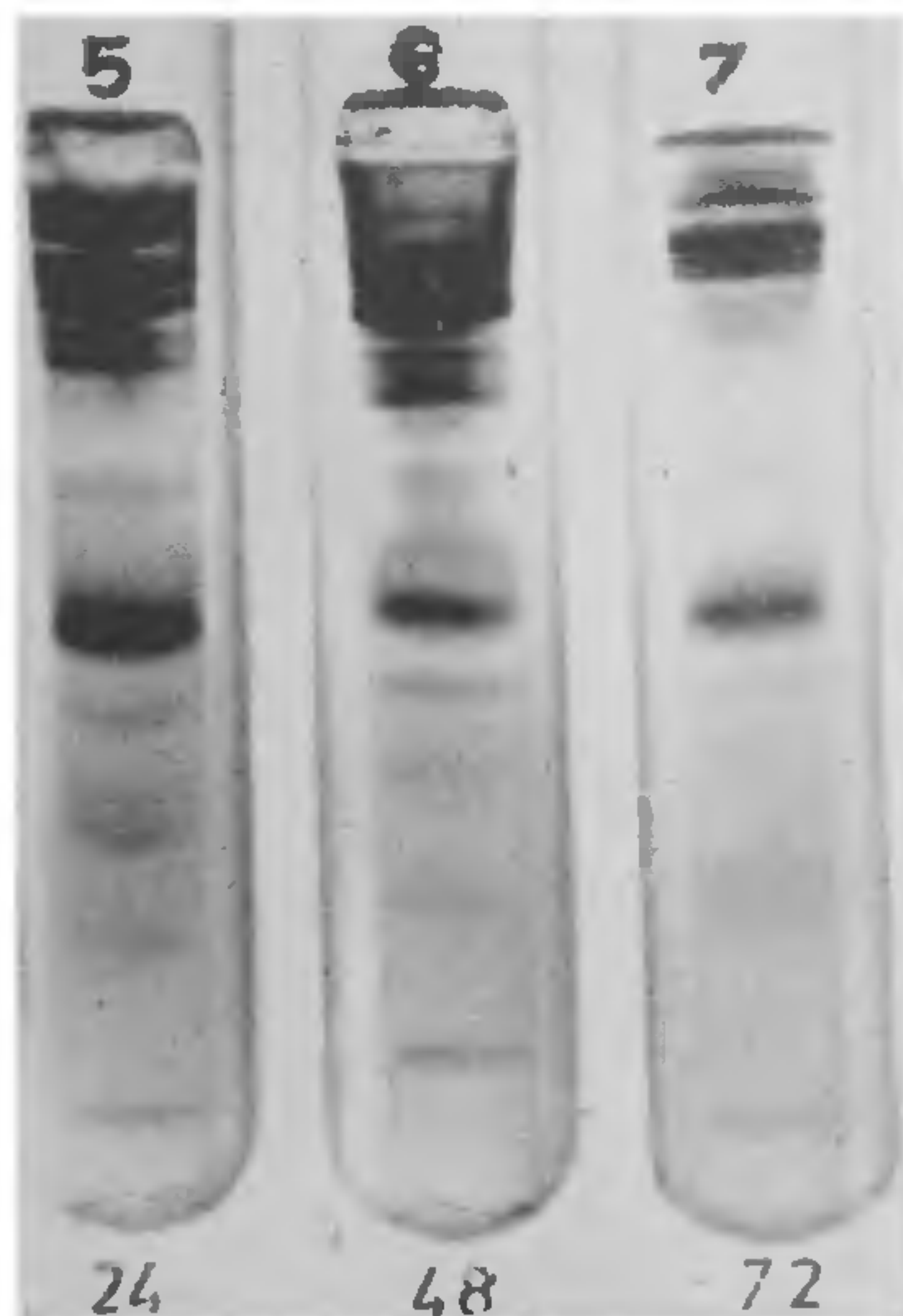


the reduction observed at 48 h was brought up to the original level of 19 (Fig. 7) as the treated larvae moulted into superlarvae. The small increase in total protein (Table I) and decrease in the number of protein bands observed in the blood of treated larvae at 48 h (Fig. 6) may be due to rapid synthesis of short lived m-RNA which in turn synthesized more of the protein. The decrease observed in total protein in the haemolymph of treated individuals at 72 h is due to the fact that the treated larvae did not lend themselves for transformation into pupae at which stage, the blood of the insects is expected to have more of protein, due to occlusion of disintegrating cells into

the blood cells. The reduction in the number of protein bands and increase in the quantity of total protein recorded at 72 h in the blood of pre-pupa of normal animal strengthen the above view and suggests that missing bands of protein in the normal animal may be responsible for their transformation, into pupae since they are present in the superlarvae. The extra protein bands in superlarvae may be juvenile hormone bound protein which perhaps helped the animal to maintain the extra-larval instar instead of terminating the larval stage.

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FIGS. 5-7. The electrophoretic pattern of the blood protein of juvenilized caterpillar of *S. litura*. The numbers at the bottom of tubes indicate the period in hours.

TABLE I

Effect of insect growth regulator on the protein content of haemolymph of Caterpillar of *S. litura*

	Mean total protein $\mu\text{g}/\mu\text{t}$ of blood			
	At start	24 hrs.	48 hrs.	72 hrs.
Normal Caterpillar	20.00	25.60	26.30	50.50*
Treated Caterpillar	..	24.70	28.50	45.30**

* Transformed into prepupa.
** Super larva,

- Chen, P. S., *Adv. Insect Physiol.* (Eds. J. E. Treherne and V. B. Wigglesworth), Vol. 3, Academic Press, London and New York, 1966, p. 53.
- Dahm, K. H., Roller, H. and Trost, B. M. *Life Sci.* (Oxford), 1968, 7, 127.
- Davis, B. J., *Ann. N.Y. Acad. Soc.*, 1964, 121, 404.
- Ilan, J., Ilan, J. and Patel, N. G., *Insect Juvenile Hormone Chemistry and Section* (Eds.) J. J. Mann and M. Beroza, Academic Press, New York, 1972, p. 43.
- Lowry, O. H., Rosebrough, N. J., Farr, A. L. and Randall, R. J., *J. Biol. Chem.*, 1951, 193, 265.
- Patel, N. and Madhavan, K. J., *Insect Physiol.*, 1969, 15, 2141.
- Socha, R. and Sehna, F., *Ibid.*, 1972, 18, 317.
- Williams, C. M., *Biol. Bull.*, 1961, 121, 572.
- Willis, J. H., *A. Rev. Ent.*, 1974, 11, 97.
- Sundaramurthy, V. T., *Ph.D. Thesis*, Tamil Nadu Agricultural University, Coimbatore (India), 1974, p. 66.
- , *Phytoparasitica*, 1976, 4, 19.
- , Submitted to *Cur. Sci.*

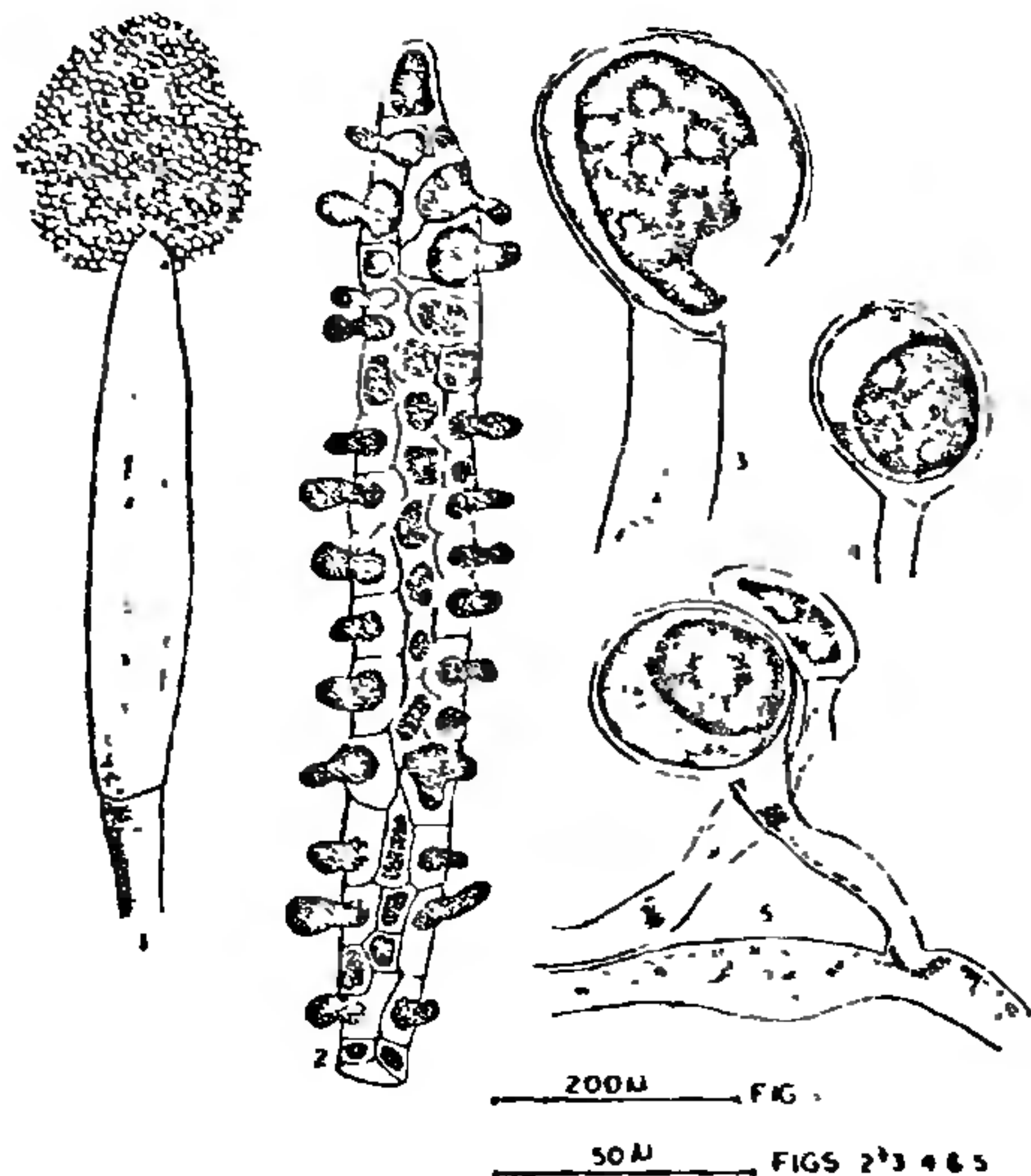
A NEW SPECIES OF *DICTYUCHUS* FROM ALKALINE PONDS OF INDIA

DURING the course of a study of the mycoflora of alkaline mud and water, the authors isolated a new species of the genus *Dictyuchus* which is described here.

Dictyuchus lucknowensis sp. nov.

Mycelium in semine *Cannabis sativa* modestus densis, hyphis in basi 19-86 μm , Gemmis ex articulis

hypharum eformatis. Sporangii terminalibus dictyoid, eurenticulis et modo cymosis crescentibus, 167–655 μm longae et 11–33 μm latae. Aliquibus sporangii *Achlya* instar. Sporis 8–17 μm diam. Oogoniis globosis 25–42 μm diam. Oosporidis 1, guttulis oleosis excentricis 22–28 μm diam, coadunatis, tunica oogoniorum non-punctulata. Antheridiis rariis, dicliniis, solaris per oogoniis.



FIGS. 1–5. Fig. 1. Achlyoid sporangium with cluster of spores at the tip. Fig. 2. Dictyoid sporangium. Figs. 3–5. Oogonia.

Vegetative growth moderately dense on hemp seed halves. Hyphae measuring 19–86 μm near the base. Gemmae present in old culture, formed by the segmentation of the hyphae. Both Achlyoid and dictyoid type of sporangia present, former being rare while the latter ones abundant and are of true net type. Dictyoid type of sporangia are branched, all arising from the tips of hyphae and by cymose branching measuring 167–655 μm \times 11–33 μm . Spores 8–17 μm in diameter. Oogonia abundant, spherical, borne singly on lateral branches and measuring 25–42 μm in diameter, oogonial wall unpitted and smooth. Oospheres one in number, eccentric, 22–28 μm in diameter. Antheridia rarely present, diclinous, one per oogonium if present.

Isolated in Jan. 1976 from pond water (pH 8.5), collected from "Baba Ka Pokhara", situated on the side of Lucknow–Rae–Bareilly road. Slides of the type culture are deposited in Mycological collections, Botany Department, Lucknow University, Lucknow, India.

Although the present species has some characteristics that bring it closer to *D. pseudoachlyoides* Bencke¹, it differs from that in having sporangia of only true net type and oogonia with one diclinous antheridia which are rare.

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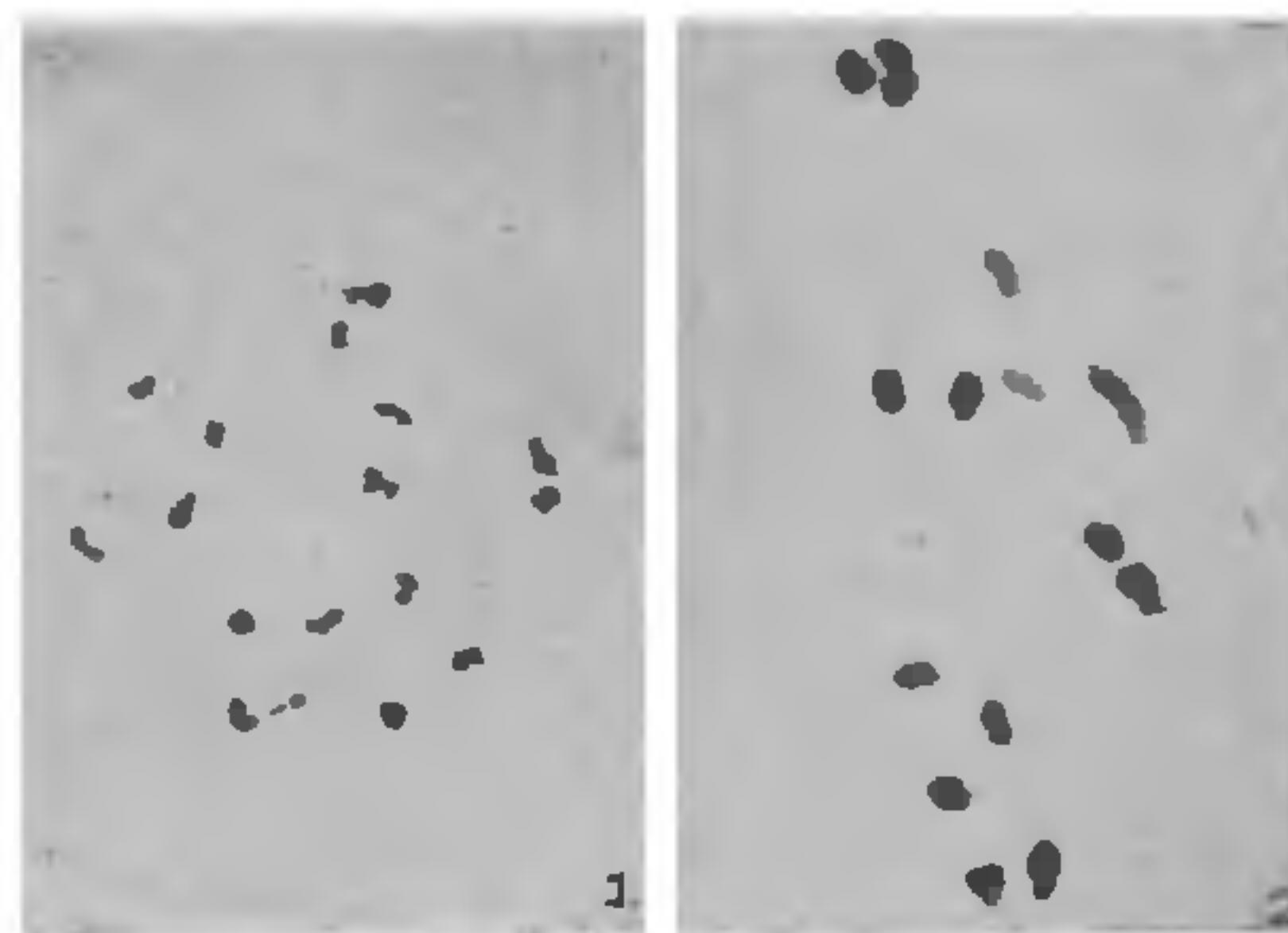
J. K. MISRA.

1. Bencke, E. S., "A new spp. of *Achlya* and *Dicryochus*," *Journ. Elisha. Mitch. Soc.*, 1948, 64, 261, pl. 30.

CYTOLOGY OF *ARECA MACROCALYX* BECC.

IN the genus *Areca*, *A. catechu* the betel nut palm is the only cultivated species. Till recently, the cytological information on the genus is confined to the reports of chromosome numbers, their morphology and meiotic analysis in *A. catechu* and *A. triandra*^{1–5}.

The Regional Station of Central Plantation Crops Research Institute at Vittal has a germplasm collection consisting of 6 species introduced from East Indies and Near-East countries and the cytology of a species introduced from New Guinea, namely *A. macrocalyx* Becc. is reported here.



FIGS. 1–2. Microsporogenesis in *A. macrocalyx*. Fig. 1. Diakinesis with 16 bivalents, \times 1,300. Fig. 2. Early metaphase-I with 3_{IV} + 10_{II}, \times 1,850.

The chromosome association at diakinesis as well as metaphase-I ranged from 1_{IV} + 13_{II} to 13_{II} + 6_I. An association of 16_{II} was observed in 54.3% of the pollen mother cells at diakinesis and 29.8% at metaphase-I. A maximum of four quadrivalents was observed in 2.2 and 7.0% of the pollen mother cells at diakinesis and metaphase-I respectively. Laggards were observed in 10.6% of the cells.