

This method of induced breeding tawes, successfully attempted for the first time, opens up a simple process of breeding this fish. This is simpler than the

method followed for its breeding in its home country. Such a success is a concrete step forward towards the propagation of the species for biological control of aquatic weeds, besides augmenting fish production.

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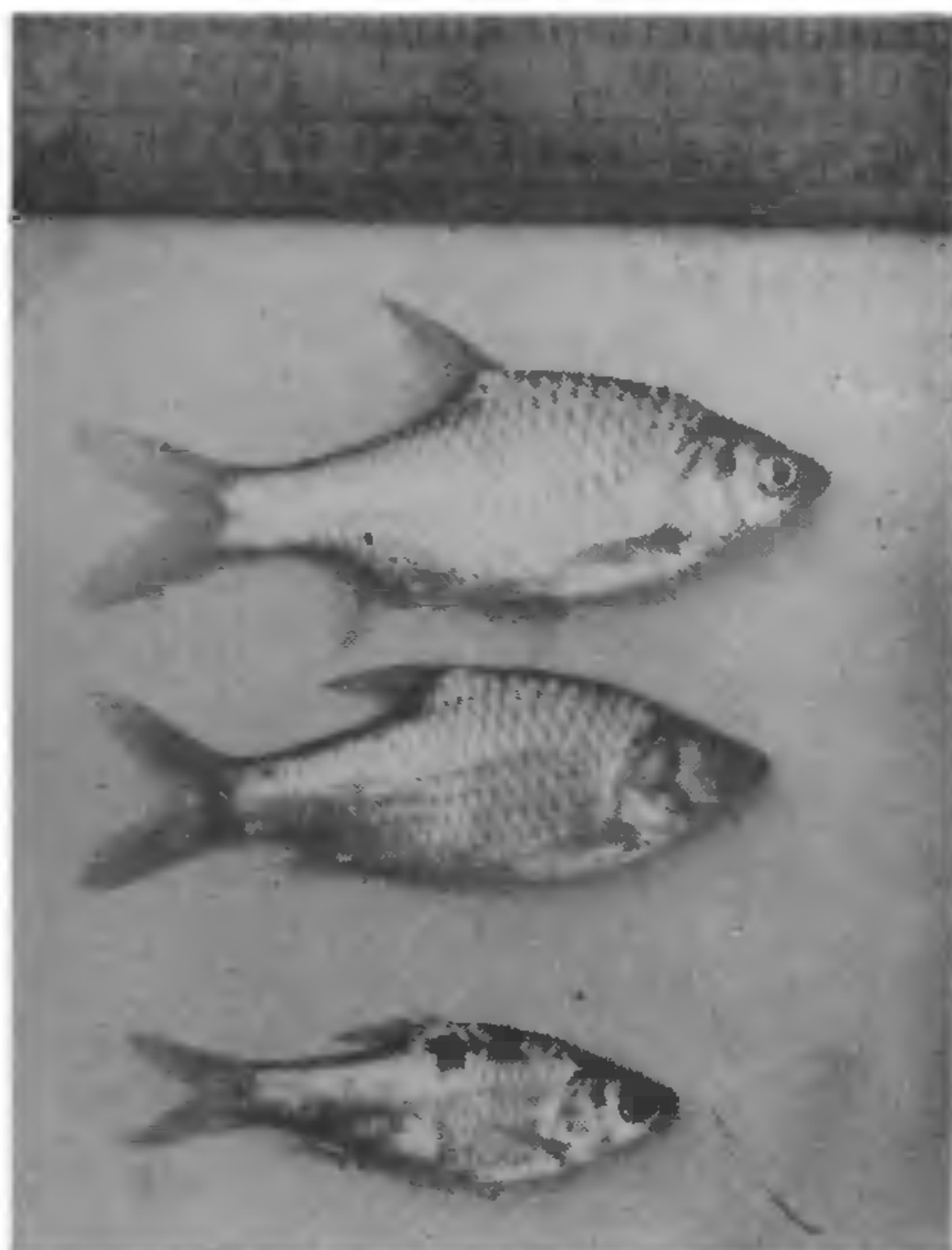


FIG. 1. 2 months old fingerlings of *Puntius javanicus*.



FIG. 2. 2 months old fingerlings of *P. javanicus* in a plastic bag.

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PRESENCE OF CILIA IN SCHWANN CELLS AND IN SATELLITE CELLS OF FROG SKELETAL MUSCLE IN DENERVATED CONDITIONS

AN unexpected presence of cilia in different cell systems such as smooth muscle¹, renal epithelium² and parenchymal cells of adenohypophysis³ has already been reported. In addition to that, there are reports of cilium being present in the sympathetic ganglion of frog, axolotl and lizard⁴ and in the autonomic nervous system of rat⁵. In the present report, we have shown an incidental finding of incomplete cilium in the Schwann cells of neuromuscular junctions and satellite cells in denervated skeletal muscle.

The muscles *rectus internus major* and *sartorius* from frogs *Rana esculenta* and *Rana temporaria* were used for the present study. The methods are given in our previous publication⁶.

It has already been reported that after denervation the Schwann cell takes the place of nerve terminal and is present in front of the post-synaptic membrane^{6,7}. Quite often, we observed the presence of an incomplete cilium in the Schwann cell present in front of the post-synaptic membrane. It is lying mostly in the transverse position to the longitudinal axis of the muscle fibre. It has a double membrane structure containing 8 or 9 double fibrils, the central fibrils are mostly absent (Fig. 1).

Satellite cells are known to increase after denervation⁸ and cilia are frequently found in these satellite cells. Fig. 2 shows one such example where an incom-

plete cilium, obliquely sectioned has extended in the intercellular space between the satellite cell and the muscle fibre.



FIG. 1. Electron micrograph of longitudinal section of neuromuscular Junction (Muscle *rectus internus major* of *Rana esculenta*), 115 days after denervation. The Schwann cell (S) is present in front of the post-synaptic folds (arrows). The Schwann cell contains an incomplete cilium (Ci) in cross-section. Mu = muscle fibre. 10,000 \times .

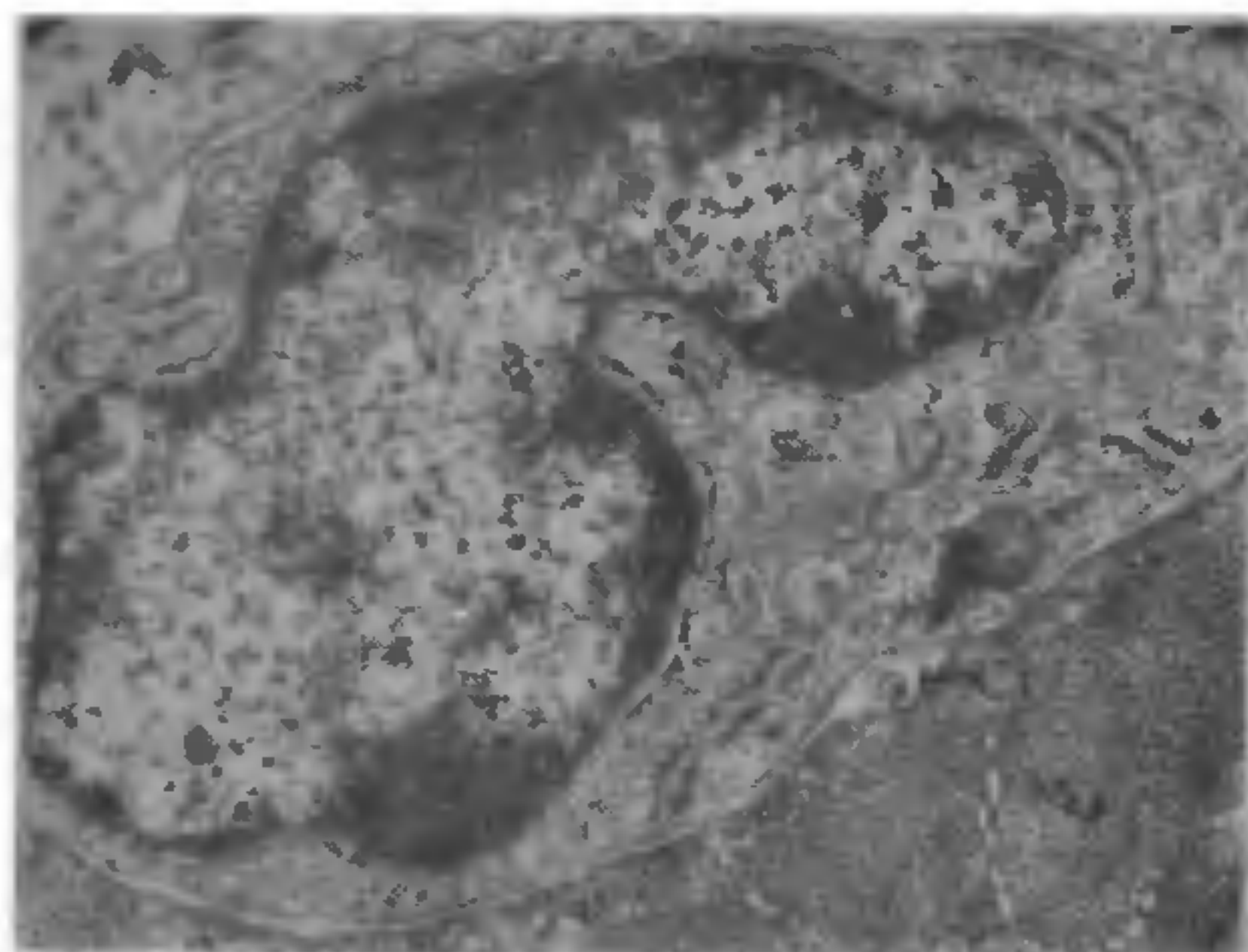


FIG. 2. Electron micrograph of transverse section of the muscle *rectus internus major* of *Rana esculenta*, 38 days after denervation. The figure shows one satellite cell (S) in contact with the muscle fibre (Mu). An obliquely sectioned incomplete cilium (Ci) is present between the muscle membrane and satellite cell membrane. 17,000 \times .

After finding the presence of cilium in the Schwann cells and satellite cells of the denervated muscles, we tried to look for it in the normal muscle. Very rarely we came across a cilium in the Schwann cell enveloping the nerve terminal of a normal neuromuscular junction. We did not find any cilium in the satellite cells of muscles in normal conditions. We do not know whether to attribute this difference to denervation or not. It could be the question of simple statistics—the size of the sample was bigger for the experimental animals than for the control animals.

Hanzlikova *et al.*⁹ have reported the presence of such incomplete cilium in the Schwann cell of denervated muscle of rat. Although Miledi and Slater¹⁰, in their study of denervated muscle of rat have not described the presence of cilium in the Schwann cell but the former can be observed in their electronmicrographs. According to Grillo and Palay⁵. "The Schwann cell cilia could result from arrested development, abnormal deviation or degeneration in the morphogenesis of complete cilia". Generally, these atypical cilia are considered immobile and it is improbable that they have any functional significance. Their existence in the Schwann cell possibly indicates the ancestral proximity of these cells to embryonic ectodermal cells.

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REDISCOVERY OF *TRICHINELLA SPIRALIS* (OWEN, 1835) IN DOMESTIC PIGS IN INDIA

Trichinella spiralis is the most important nematode in public health and pig husbandry especially in Western Countries. Man suffers from trichinellosis, principally, by consumption of pork containing viable larvae of this dreadful worm.

This nematode is rare in tropics. In India, there are only four isolated authentic records of its occurrence, three from individual cases of cats (two from Calcutta^{1,2} and one from Bombay³) and the fourth from bandicoots and house shrews by Niphadkar^{4,5}. The incidence of this nematode has not so far been reported from man nor from country pigs in spite of