

Occurrence of Periodic Acid-Schiff Positive Material in the Pituitary of the Parrot Fish, *Pseudoscopus guacamaia*

DURING the course of investigations into the histochemistry of fish pituitaries, the distribution of periodic acid-Schiff positive material¹ was noted in the parrot fish, *Pseudoscopus guacamaia*. Whereas in mammalian pituitaries periodic acid-Schiff positive material is associated only with basophils (anilino-blue positive after Heidenhain's 'Azan' procedure), namely, the gonadotrophs and thyrotrophs², in *Pseudoscopus* the mid-glandular region of the adenohypophysis has two types of acidophils, one of which is strongly and uniformly periodic acid-Schiff positive and the other negative. This large polygonally shaped periodic acid-Schiff positive acidophil of *Pseudoscopus* stains a deep orange after the Gomori aldehyde-fuchsin orange G method for the demonstration of neurosecretory material and is carminophilic after treatment with Heidenhain's 'Azan' stain. In addition to this type of cell, two types of basophils are present in the mid-glandular region which are periodic acid-Schiff positive as in mammals and other teleost fish. Furthermore, although some of the periodic acid-Schiff positive basophils stained selectively after aldehyde-fuchsin as in other teleosts³, the periodic acid-Schiff positive acidophil gave a negative aldehyde-fuchsin reaction. It would appear, then, that in this fish, unlike mammals, a carbohydrate-containing hormone is possibly produced by cells which are 'acidophilic' after application of the conventional staining procedures.

Neurosecretory material in the neurohypophysis of *Pseudoscopus* gives a very positive reaction after aldehyde-fuchsin treatment. However, this neurosecretory material is not periodic acid-Schiff positive. This appears to conform with observations made on the neurohypophysis of other species of fish in which there is little or no carbohydrate-containing material that can be identified with the neurosecretion. Schiebler⁴, however, reports periodic acid-Schiff positive material having the same localization as Gomori neurosecretory substance in the pike (*Esox lucius*), and has suggested that neurosecretion is probably a complex of glycolipoprotein. Observations made on the neurosecretory substance of

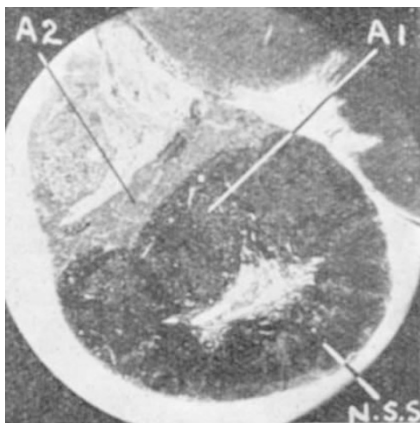


Fig. 1. Longitudinal section of the pituitary of *Pseudoscopus* ($\times c. 215$) after staining in orange G and aldehyde-fuchsin showing dark orange acidophils, A1; yellow acidophils, A2; and neurosecretory substance, N.S.S.

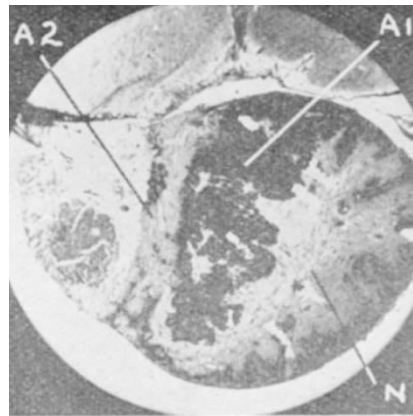


Fig. 2. An adjacent section to that of Fig. 1 after periodic acid-Schiff treatment showing that only the A1 acidophils are positive. N, neurohypophysis

Pseudoscopus and some other teleosts have given results which are more in accord with those of Howe and Pearse⁵, who regard the neurosecretory substance as not containing lipid or carbohydrate material and being protein or polypeptide in character.

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¹ Pearse, A. G. E., "Histochemistry" (Churchill, London, 1953).

² Pearse, A. G. E., *Ciba Colloquia*, 4, 1 (1952).

³ Barrington, E. J. W., and Matty, A. J., *Quart. J. Micro. Sci.*, 96, 193 (1955).

⁴ Schiebler, T. H., *Acta Anat.*, 15, 393 (1952).

⁵ Howe, A., and Pearse, A. G. E., *J. Histochem. and Cytochem.*, 4, 561 (1956).

Soil Transmission of Beet Ringspot Virus to Peach (*Prunus persica*)

ALTHOUGH few plant viruses are known to be soil-borne, recent studies have shown that such viruses are present in many localities in eastern Scotland¹⁻³, and it was suggested that they are probably much more generally distributed than has hitherto been suspected. The soil-borne viruses found in Scotland appear to have a very wide host-range, and one of them, beet ringspot virus, has been isolated from many species of herbaceous plants, including sugar beet, potato, turnip, wheat, oat, strawberry and many weeds³. The results reported below show that this virus is also soil-borne to peach, a woody species, and that the virus can be readily transmitted by mechanical inoculation from peach to herbaceous plants.

In April 1956, twenty-five peach seedlings were planted in pots of soil which was collected from a field where beet ringspot virus occurred: the pots were kept in an insect-free glasshouse. Symptoms first appeared on seven plants in April 1957, when the dormant buds started to grow. However, one out of fifteen seedlings planted in similar soil in April 1957 showed symptoms within four weeks. Usually only a proportion of the buds on each diseased plant produced symptom-bearing leaves. These leaves had yellow blotches centred on the leaf midrib or lateral veins and often extending along them. Circular translucent areas also appeared in the laminae of