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CORPUSCLES OF STANNIUS OF FRESHWATER MUD EEL, AMPHIPNOUS CUCHIA

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RESUMO - O presente artigo estuda o número, localização e estrutura citológica dos corpúsculos de Stannius da enguia, *Amphipnous cuchia*. Nos corpúsculos de Stannius foram encontrados dois tipos celulares, células AF positivas e células AF negativas.

ABSTRACT - The present paper deals with the study of the number, location and cytological structure of corpuscles of Stannius of *Amphipnous cuchia*. Two cell types - AF-positive and AF-negative cells have been observed in the corpuscles of Stannius.

INTRODUCTION

In teleosts, the corpuscles of Stannius (CS) are endocrine glands located on the Kidneys. Removal of CS from teleosts leads to hypercalcemia (Pang *et al.*, 1973; Fenwick , 1974; So & Fenwick, 1979) which can be corrected either by homotransplantation of CS or by injections of corpuscular extracts (Fontaine, 1964; Fenwick & Forster, 1972; Pang *et al.*, 1973) These results suggest that CS are endocrine organs which function in the calcium homeostasis.

In this communication, light microscopic structure of corpuscles of Stannius of a freshwater mud eel, *Amphipnous cuchia*, has been described.

MATERIAL AND METHODS

Live specimens of *Amphipnous cuchia* were obtained from local Ramgarh lake. The kidneys were dissected out and after recording the visual observations as to the number and disposition of corpuscles of Stannius, pieces of kidneys containing CS were fixed in Bouin's fluid. After processing with the routine paraffin methods, serial sections of 4 - 6 µm thickness were cut and stained with hematoxylin/eosin and aldehyde fuchsin (AF) method.

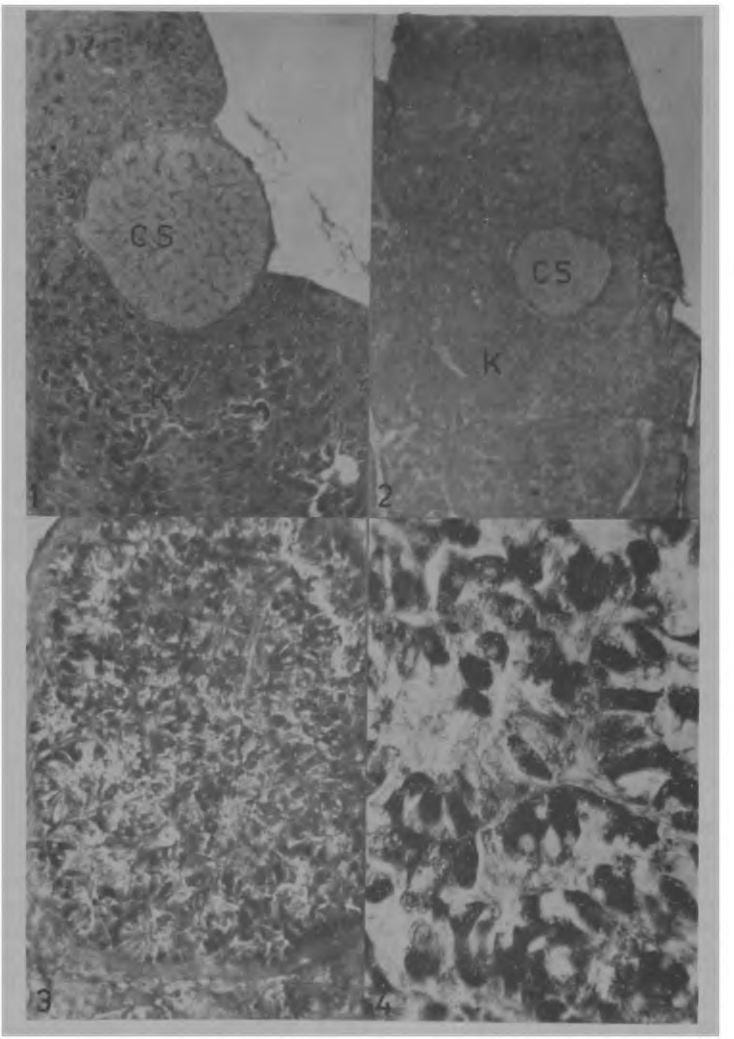

Fig. 1 - Photomicrograph of kidney (K) showing slightly projecting corpuscles of Stannius (CS) Hematoxylin/eosin x 70

Fig. 2 - Photomicrograph of kidney (K) exhibiting deeply embedded corpuscles of Stannius (CS) Hematoxylin/eosin x 70

Fig. 3 - Photomicrograph of corpuscles of Stannius depicting AF-positive and AF-negative cells Aldehyde fuchsin x 280

Fig. 4 - Higher magnification of figure 3. Aldehyde Fuchsin x 700.

OBSERVATIONS

The CS of *A. cuchia* are cream coloured organs, oval or cylindrical in shape and are scattered ventrally or ventrolaterally in the posterior two thirds of the length of the kidney. They are either superficially attached or projecting slightly (Fig. 1) or remain deeply embedded (Fig. 2) in the kidney. The corpuscles exhibit individual variation in number (between 16 - 22) and are asymmetrically distributed.

Each CS is enveloped by a thick capsule of connective tissue which isolates it from the renal tissue (Figs. 1, 2) From the capsule, connective tissue layers extend into the gland. The glandular parenchyma consists of a large number of cords or lobules of epithelial cells. These epithelial cells have oval or rounded nuclei located near the middle of the cells. These nuclei possess many sharp staining chromatin granules and often a small central nucleolus. When subjected to aldehyde fuchsin staining technique, the CS reveals two types of cells: AF - positive and AF - negative (Figs 3, 4)

DISCUSSION

In the present study the CS reveals two cell types: AF - positive and AF - negative. This is in agreement with the other reports, regarding the occurrence of two cell types in the CS of other species, made by certain investigators - Nadkarni & Gorbman (1966,in *Oncorhynchus tshawytscha* & *O. kisutch*), Krishnamurthy & Bern(1969,in *Salmo gairdnerii)*,Wendelaar Bonga & Greven (1975, in *Anguilla anguilla)*, Wendelaar Bonga *et al.* (1976, in *Gasterosteus aculeatus)*, Bhattacharyya & Butler (1978, in *Opsanus tau*) and Wendelaar Bonga *et al.* (1980, in *Fundulus heteroclitus* & *Carassius auratus*) On the other hand, single cell type has been reported by other workers (Ristow, 1964; Oguri, 1966; Ogawa, 1967; Fujita & Honma, 1967; Cohen *et al.*, 1975; Gill & Punetha, 1977, 1978; Swarup & Ahmad, 1978; Ahmad & Swarup, 1979)

The present report clearly indicates that CS of *A. cuchia* contains two cellular types. This supports the supposition that the gland secretes more than one type of hormone - one which is concerned with calcium and the other concerned with sodium and potassium regulation (Wendelaar Bonga *et al.*, 1976)

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