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Abstracts

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EFFECTS OF PROLACTIN ON α AND β CHLORIDE CELLS IN THE GILL EPITHELIUM OF THE SALT WATER ADAPTED TILAPIA (*OREOCHROMIS NILOTICUS*).

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Tilapia (*Oreochromis niloticus*) of 21g of average body weight were divided into three groups. A group was maintained in fresh water. Another group was adapted for 15 days to 20 ‰ salt water while a third group adapted to 20 ‰ salt water received every two days during a week a single injection of tilapia prolactin (ti-PRL I). Gills were prepared for electron microscopy in order to determine the types and surface areas of chloride cells in each experimental condition. Two types of chloride cells, the α and β cells were easily distinguished on the basis of their location and ultrastructural features in the gills of freshwater fishes, while only one type of cell, the seawater cells presumably derived from the transformation of the α cells were encountered in saltwater adapted animals. The striking fact after PRL injection of saltwater adapted fishes was the reappearance of small chloride cells mainly located in interlamellar regions of the gills which displayed ultrastructural features similar to those of β cells in freshwater tilapia. In the same experimental conditions, the voluminous saltwater cells showed a tendency to resume ultrastructural features of the α freshwater cells from which they were derived. These observations tend to indicate that prolactin behaves as a "freshwater adapting hormone" and that β cells are specifically involved in fish adaptation to freshwater living conditions.