Abstract

The endocrine system controls and coordinates behavioral, biochemical, and physiological processes through signal mechanisms using neuropeptides or products of neurosecretory cells. Among invertebrates, this system is poorly studied in rotifers, in which estrogens and androgens significantly affect sexual reproduction. This is the first report of the presence of the Luteinizing Hormone (LH), Follicle-Stimulating Hormone (FSH), Thyroid Stimulating Hormone (TSH) and Prolactin (PRL) in rotifers. Analyses included the avidin-biotin-peroxidase complex method with primary antibodies LH (Anti-Rat LH serum for RIA), PRL (Anti-Rat PRL serum for RIA), FSH (Anti-Rat FSH serum for RIA) and TSH (Anti-Rat TSH serum for RIA). These hormones were found in females, males and parthenogenetic and sexual eggs of the freshwater Brachionus calyciflorus. The immunoreactivity of FSH, LH, TSH and PRL in females was observed in: ovaries, cerebrum, mastax, stomach, lorica, and the stomach gland. However, in males LH was observed only at the trochal disk and cerebrum. The hormones FSH, TSH and PRL, were observed in testicles, contractil vesicles, and cementary gland of males. Regarding amictic or parthenogenetic eggs, the hormones LH, FSH, TSH, and PRL were located mainly in the micromeres, and the staining in the macromeres was weak. On the other hand, in the mictic or sexual eggs the inner shell is stained for the hormones PRL and LH, opposite to the staining of FSH and TSH, located mainly in the embryo. In general, immuno-reactivity was observed in areas important for the reproductive, excretory, digestive and developmental processes. Rev. Biol. Trop. 57 (4): 1049-1058. Epub 2009 December 01.

Keywords

Gonadotropic hormones, lactogenic hormones, thyroid hormones, Rotifera, invertebrates