

## ABSTRACT

### PRE AND POSTPRANDIAL EFFECTS ON THE GHRELIN RECEPTORS IN THE MOZAMBIQUE TILAPIA (*OREOCHROMIS MOSSAMBICUS*)

Ghrelin (GRLN), a gut hormone produced by stomach cells, acts as an endogenous ligand for the growth hormone secretagogue receptor (GHSR). The GHSR gene codes for two separate transcripts (GHS-R1a and GHS-R1b). Expectation of feeding, a psychological factor, and metabolic status stimulate the release of GRLN from the stomach. A unique fatty acid modification on the third amino acid is essential for GRLN to bind to the GHSR on neuropeptide Y (NPY) neurons. NPY is then produced and acts as an orexigenic signal inducing a feeding behavior. The objectives of this study were to measure the pre- and postprandial GHS-R1a, GHS-R1b, and NPY mRNA levels in the brain and plasma ghrelin levels. Blood and brain samples were collected pre- and postprandially and at the time of feeding from a group of fish acclimated to a scheduled time feeding. GHS-R1a and NPY mRNA levels in the brain were significantly higher ( $P < 0.05$ ) at 1 h and 3 h preprandially and decreased postprandially in fed fish. In fasted fish, no change was observed in brain GHS-R1a and NPY mRNA levels 1 h and 3 h postprandial. No change was observed in the levels of GHS-R1b mRNA and plasma GRLN. These data confirm a role of GHS-R1a and NPY as orexigenic factors in appetite behavior of tilapia. Furthermore, these data provide evidence that GRLN does not play a role in day-to-day feeding, but may have a role in postprandial metabolism.

Sarath Chandra Peddu  
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