

REGULATION OF GONADAL DEVELOPMENT IN THE  
RIDGEBACK SHRIMP, *SICYONIA INGENTIS*

by

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## ABSTRACT

### REGULATION OF GONADAL DEVELOPMENT IN THE RIDGEBACK SHRIMP, *SICYONIA INGENTIS*

The effects of the progesterone,  $17\alpha$ -hydroxyprogesterone, and  $17\beta$ -estradiol on vitellogenesis, the process of vitellin synthesis, in the Ridgeback shrimp, *Sicyonia ingentis*, were investigated. Vitellin (Vn) was isolated, purified, and characterized using biochemistry. Vitellin has a molecular weight of 322 kDa and is composed of three subunits of 182, 91, and 85 kDa's, as determined by gel filtration chromatography and gel electrophoresis. An anti-Vn antibody was used to develop an Enzyme-Linked Immunosorbent Assay (ELISA). The ELISA has a dynamic range of 0.3 ng to 300 ng. The ELISA was used to measure the concentration of vitellogenin (Vg), the blood-borne precursor molecule of Vn, following injections of the steroid hormones in non-reproductive females. The three steroids caused no significant changes in hemolymph Vg levels during the 7 days of sample collection following injection.

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