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## **Effect of water salinity on the oxidative system of juveniles of the North Atlantic white shrimp *Litopenaeus setiferus* reared in biofloc technology**

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### **Abstract:**

This study evaluated the effect of biofloc technology (BFT) at 3 (lsBFT) and 35 (hsBFT) practice salinity units (psu) on the zootechnical performance, oxygen consumption, antioxidant activity, and oxidative damage of *Litopenaeus setiferus* juveniles reared in outdoor tanks. After 90 days, no significant differences were observed in terms of survival ( $p > .05$ ). The final weight as well as wet weight gain, final biomass, and feeding conversion ratio (FCR) showed higher values for shrimp reared with hsBFT than those reared with lsBFT ( $p < .05$ ). Compared to that for the hsBFT treatment, high oxygen consumption (VO<sub>2</sub>) was observed for the lsBFT treatment under fasting and postprandial conditions ( $p < .05$ ). The activity of the enzymes catalase, superoxide dismutase, and glutathione-S-transferase from shrimp muscle did not show significant differences between the treatments ( $p > .05$ ). Regarding the lipid peroxidation (LPO) and oxidized protein (PO) in muscle samples, no significant differences were observed in LPO, whereas the PO was significantly higher for the lsBFT treatment ( $p < .05$ ), which was related to higher fasting and postprandial oxygen consumption of the juveniles ( $p < .05$ ). The adaptation of *L. setiferus* juveniles reared in BFT at low salinity is relatively weak because of their low growth and excessive oxygen consumption and the oxidative damage (PO) produced.

Keywords: antioxidant, biofloc, immunology, *Litopenaeus setiferus*, shrimp activity, aquaculture