

**Environmental factors influencing the susceptibility of red hybrid tilapia (*Oreochromis sp.*) to streptococcus agalactiae infection.**

ABSTRACT

Streptococcosis in fish refers to re-emerging diseases causing high mortality in a variety of freshwater and marine fish throughout the Asia-Pacific region. The growth of the pathogen *Streptococcus agalactiae* isolated from red hybrid tilapia (*Oreochromis sp.*) in a brain heart infusion broth was investigated under a variety of environmental conditions. The results revealed the optimal growth temperature (25 °C and 30 °C), salinity (5 and 10 ppt), and pH (7 and 7.5) values. The effects of different environmental conditions on the susceptibility of red hybrid tilapia (*Oreochromis sp.*) to *S. agalactiae* were also investigated. *Oreochromis sp.*, which were kept under various environmental conditions, were intraperitoneally injected with 0.1 mL of  $1.56 \times 10^5$  cfu/ml *S. agalactiae*. Two weeks after infection, the cumulative mortality of the red hybrid tilapia held at 33 °C was significantly higher ( $P < 0.05$ ) than those of the fish held at 20 °C and 25 °C. In addition, the cumulative mortality of the fish in water at pH 6 was also higher than that of the fish maintained in more alkaline water. The mortality rates of tilapia at 0, 5, 10 ppt salinities were not significantly different ( $P > 0.05$ ). These results indicate that environmental conditions at 33 °C, 15 ppt, and pH 6 increased the susceptibility of red hybrid tilapia to *S. agalactiae* and probably adversely affected the fish's immune system

**Keyword:** Streptococcosis; *Streptococcus agalactiae*; Tilapia