

Water Thermocline Confirms Susceptibility of Tilapia Cultured in Lakes to *Streptococcus agalactiae*

ABSTRACT

A study was conducted on water quality profiling to confirm susceptibility of tilapia cultured in lakes to *Streptococcus agalactiae* infection. A total of 1,010 and 719 tilapias of different sizes were collected from two lakes; the Kenyir and Pedu lakes, respectively. They were randomly sampled for a period of 24 months. Swabs of brain, eye and kidney were streaked directly onto blood agar before *S. agalactiae* was identified by the API 20 STREP kit, Slidex Strepto-kit and PCR technique. The water temperature (thermocline) and dissolved oxygen profiling were determined at 1 m intervals for up to 20 m deep. Water clarity and flow rate were also recorded using Secchi disk and a current meter. *S. agalactiae* was successfully isolated from both lakes throughout the year, ranging between 2 and 78%. Isolation was more frequent during the hot and dry months of both years. During this period, the mean water temperature was >29 degrees C for up to 8 m deep due to the significantly ($p < 0.05$) clearer water and slow rate of water flow that allowed deeper light penetration and enhanced heat retention. Water thermocline that showed a drop in water temperature was observed only in Kenyir lake at >12 m deep. This and the slow water flow kept the water temperature at 4 m deep where tilapias under the cage culture system were kept to remain high causing stress to tilapia and increases susceptibility to *S. agalactiae*. Dissolved oxygen profiling, however remained high at >5 mg L⁻¹ for up to 8 m deep and did not give adverse effects to susceptibility of tilapia to *S. agalactiae*.

Keyword: Water profiling, lakes, tilapia, *Streptococcus agalactiae*, temperature, Secchi disk