

**The effect of heat stress on the oxidative status of red hybrid tilapia (*Oreochromis sp.*)
infected with *Streptococcus Agalactiae***

ABSTRACT

A commercial red hybrid tilapia was experimented with *S. agalactiae* infection under influences of heat stress which indicated by plasma malondialdehyde (MDA) and erythrocyte superoxide dismutase (SOD) as biomarkers of stress. To achieve these objectives, 110 red hybrid tilapia in good health were divided into five groups of 22 fish each. Group A was challenged with 2.3×10^9 CFU of *S. agalactiae* and exposed to heat stress at $33 \pm 0.5^\circ\text{C}$ on day 1. Group B was challenged on day 1 as in Group A but heat stress was introduced on day 7 post challenge (pc). Group C was exposed to heat stress on day 1 and challenged on day 7 pc while groups D and E served as a positive and negative controls respectively. Blood samples were collected at days 0, 3, 7, 10 and 14 for MDA and SOD analysis. Groups A and B recorded high mortality following exposure to heat stress and bacteria inoculation, with group A reaching 100% mortality at day 7 post inoculation. Overall, Groups A, B, C and Group D showed pattern of increase in MDA level as early as day 3 and decrease pattern for SOD activity. Group E did not show any significant difference in MDA level throughout the study period. Clinical signs such as erratic swimming, exophthalmia, skin haemorrhage and cloudy eye were predominantly observed in group A 24 h post inoculation. Based on the findings of this study, it was concluded that heat stress plays crucial role in the pathogenesis of *S. agalactiae*, via alteration of the oxidant defence system.

Keyword: Red hybrid tilapia; *S. agalactiae*; Malondialdehyde; Superoxide dismutase