

**Study on Streptococcus agalactiae infection in Javanese medaka (*Oryzias javanicus* Bleeker, 1854) model.**

**ABSTRACT**

This study determines the median lethal dose, and describes the clinico-pathological changes and disease development following *Streptococcus agalactiae* infection in Javanese medaka model. Javanese medakas were infected with *S. agalactiae* via intraperitoneal (IP) from  $10^4$  to  $10^8$  CFU/mL, and immersion (IM) route from  $10^3$  to  $10^7$  CFU/mL. The LD<sub>50-240h</sub> and clinico-pathological changes of the fish was determined until 240 h post infection (hpi). Next, the disease development was determined for 96 hpi in the fish following IP and IM infection at  $10^3$  CFU/mL and  $10^4$  CFU/mL, respectively. The LD<sub>50-240h</sub> of *S. agalactiae* in Javanese medaka was lower following IP injection ( $4.5 \times 10^2$  CFU/mL), compared to IM route ( $3.5 \times 10^3$  CFU/mL). The clinical signs included separating from the schooling group, swimming at the surface of water column, lethargy, erratic swimming pattern, corneal opacity and exophthalmia. Histopathological examinations revealed generalized congestion in almost all internal organs, particularly in liver and brain, while the kidney displayed tubular necrosis. Both IP and IM routes showed significant positive correlation ( $p < 0.05$ ) between the CFU/g of *S. agalactiae* in the fish tissue and fish deaths. Moreover, the lesions for histopathological scoring in selected organs following IP and IM challenges were also reflecting the CFU/g and fish deaths. This study indicates the capability of Javanese medaka as a model organism in study of streptococcosis development.

**Keyword** : Javanese medaka; Pathogenesis; *Streptococcus agalactiae*; Test organism.