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**Pathological Analysis, Detection of Antigens, FasL Expression Analysis and
Leucocytes Survival Analysis in Tilapia (*Oreochromis niloticus*) after Infection
with Green Fluorescent Protein Labeled *Streptococcus agalactiae***

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Abstract

The pathogenesis of *Streptococcus agalactiae* infection in tilapia has not been fully described. To understand this, we investigated the clinic-pathological features of acute experimental septicemia in tilapia (*Oreochromis niloticus*) after receiving an intra-peritoneal injection with *S. agalactiae* THN-1901GFP. Immunohistochemistry and sections of pathological tissues were used to estimate the level of damage in the head-kidney, liver, spleen and trunk-kidney. The expression of FasL was analyzed by western blotting in these samples based on their damage levels. Leucocytes were isolated from the head-kidney and incubated with *S. agalactiae* THN-1901GFP. Then, phagocytosis, programmed cell death and the expression of FasL were analyzed. The infected tissues showed varying degrees of necrosis and histolysis. The serous membrane of the intestine was dissolved by *S. agalactiae* THN-1901GFP. Antigens of *S. agalactiae* THN-1901GFP accumulated in different parts of the infected organs. In the head-kidney and spleen, the expression of FasL was up-regulated in parallel with increased tissue damage. After being incubated with *S. agalactiae* THN-1901GFP, the phagocytic capacity and ability were both very high and the expression of FasL remained high in leucocytes. *S. agalactiae* THN-1901GFP was able to survive for a long period of time after being engulfed by phagocytic cells. These findings offer insight into the pathogenesis of *S. agalactiae* infection in tilapia.

Key words: *Streptococcus agalactiae*; pathology; Phagocytosis; Tilapia; FasL;

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