

Histological Studies of the Effects of *Aeromonas salmonicida* on the Tissues in *Brachymystax lenok*

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Introduction

Furunculosis caused by *Aeromonas salmonicida* occurred frequently in farm-raised *Brachymystax lenok* recently and affected the healthy development of cold-water fish aquaculture in China. In this study, the effect of a pathogenic strain *A. salmonicida* (LN1301) on four tissues (including liver, spleen, kidney and intestine) of fish was investigated. LN1301 was originally recovered from liver of diseased juvenile *Brachymystax lenok* with septicemia signs. Artificial infection proved that LN1301 was highly virulent to fish when challenged by wounded immersion or intraperitoneal injection. Healthy juvenile *Brachymystax lenok* (body weight of 90g-100g) were used for virulence assays and observation of histological changes. The experimental fish were randomly assigned into treatment group (n=3) and control group (n=3). The fish in the treatment group was intraperitoneal injected with LN1301 strain at a dosage of 1×10^6 CFU and the control fish received equal amounts of distilled water. The fish which exhibited clinical signs were then sacrificed and the tissues were taken carefully and fixed quickly into the Bouin's solution for routine histological procedures. The results indicated that there were obvious histological changes in several tissues of LN1301 infected fish. As shown in Figure 1A, hepatic cells degenerated, cytoplasm became loosened, lots of lymphocytes infiltrated, amounts of erythrocytes increased in liver. Regarding the spleen, parenchyma cells dissolved, nucleus enlarged and the cytoplasm became loosened (Figure 1B). In the kidney of diseased fish, epithelial cells appeared hydropic degeneration and separated from the basement membrane. Glomeruli was swelled and arranged in disorder with the increasing of the cystic cavity gap (Figure 1C). There was no obvious boundary among the layers of intestinal mucosa (Figure 1D).

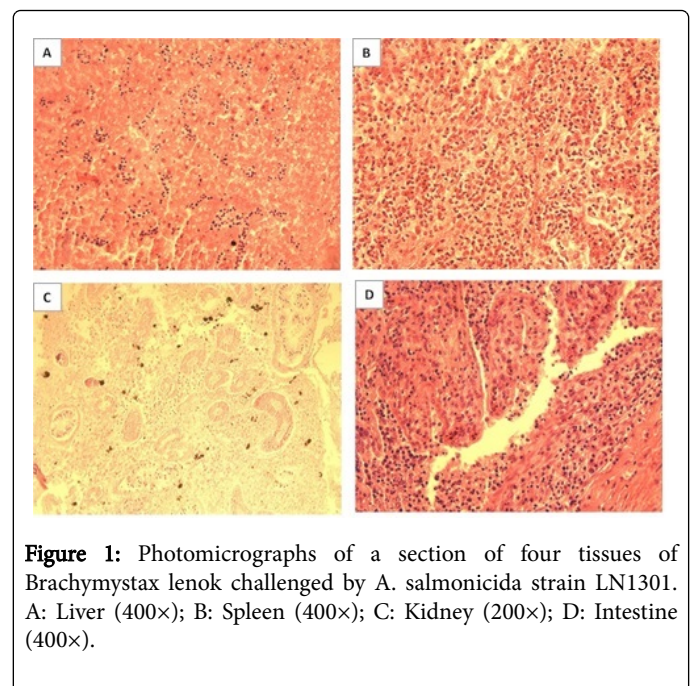


Figure 1: Photomicrographs of a section of four tissues of *Brachymystax lenok* challenged by *A. salmonicida* strain LN1301. A: Liver (400×); B: Spleen (400×); C: Kidney (200×); D: Intestine (400×).

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