

## **Effects of skin abrasion in immersion challenge with *Vibrio harveyi* in Asian seabass *Lates calcarifer* fingerlings**

### **ABSTRACT**

Skin abrasions often occur in farmed fish following handling by labourers, injury by farm facilities, cannibalism and ectoparasites. *Vibrio* spp. are opportunistic pathogens that can invade host fish through damaged tissues and cause outbreaks of vibriosis. This study describes the effect of skin abrasions on the infectivity of *V. harveyi* using Asian seabass *Lates calcarifer* (Bloch, 1790) fingerlings as a case example and compares bacterial load and fish survival following immersion challenge with different doses. In total, 315 fish ( $6.67 \pm 1.8$  g) were divided into 3 treatments: skin abrasion followed by immersion infection, immersion infection only and an uninfected, uninjured control. Fish in the infection treatments were divided into 3 subgroups and exposed in triplicate to a 7 d immersion challenge with 106, 107 and 108 CFU ml<sup>-1</sup> of live *V. harveyi*. No mortalities were observed in the control and immersion infection groups. However, fish in the skin abrasion treatment group that were infected with 108 CFU ml<sup>-1</sup> of live *V. harveyi* showed signs of progressing disease throughout the experiment, which resulted in mortalities. Significantly higher bacterial loads ( $p < 0.05$ ) were recorded in the intestine, liver and gills of the fish in this group. Fish in the skin abrasion treatment that were exposed to 107 and 108 CFU ml<sup>-1</sup> of *V. harveyi* showed 100% mortality by Days 5 and 4, respectively. These findings confirm that skin injuries increase the susceptibility of seabass fingerlings to *V. harveyi* infection.

**Keyword:** Skin abrasion; Immersion challenge; *Vibrio harveyi*; Asian seabass