

Strategies for the Prevention of Fish and Shellfish Diseases in Japan

(日本における魚介類の疾病と防疫対策)

Dr. Yukinori Takahashi
(Guest Professor of Yamaguchi University)

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of Veterinary Science)

In Japan, mass mortalities of cultured marine fish due to infectious diseases have been often reported. Among diseases caused by Gram-positive bacteria, *Lactococcus garvieae* infection in yellowtail, amberjack, jack mackerel, striped jack and olive flounder, *Streptococcus iniae* infection in yellowtail, olive flounder and filefish, *S. parauberis* infection in olive flounder, *Nocardia seriolae* infection in yellowtail. Among diseases caused by Gram – negative bacteria, *Edwardsiella tarda* infection in olive flounder and red sea bream, *Photobacterium damsela* subsp. *piscicida* infection in yellowtail, red sea bream, striped beakperch and olive flounder, *Tenacibaculum maritimum* infection in olive flounder, red sea bream and striped beakperch, *Vibrio* spp. infection in various marine fishes cause serious damages every year.

A commercially available *L. garvieae* and *V. anguillarum* vaccine is used in yellowtail and amberjack by oral administration or injection. *S. iniae* vaccine is used in olive flounder by injection. Recently, oil – based bivalent vaccine against *P. damsela* and *L. garvieae* infection was developed in yellowtail and amberjack.

We have developed pentavalent vaccine against streptococciosis and edwardsiellosis in olive flounder. Efficacy of pentavalent vaccine with formalin-killed *S. parauberis* (serotype 1 and 2 strain), *S. iniae* and *E. tarda* (motile and non-motile strain) were tested by vaccination followed by intramuscular challenge with the each pathogen. The olive flounder vaccinated with pentavalent vaccine showed higher resistance against the each pathogen on two weeks post-vaccination.

These results revealed that pentavalent vaccine was effective in prevention against streptococciosis and edwardsiellosis in cultured olive flounder.