O-115

WHOLE INACTIVATED VIRUS VACCINE PROTOTYPE PROTECTS AGAINST VIRAL ENCEPHALOPATHY AND RETINOPATHY IN EUROPEAN SEA BASS (*D. LABRAX*)

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Viral Encephalopathy and Retinopathy (VER), otherwise known as Viral Nervous Necrosis (VNN), is a severe pathological condition, caused by *Betanodavirus*. The disease is considered as the most serious viral threat affecting marine farmed species in the Mediterranean region, thus representing one of the bottlenecks for further development of aquaculture industry of European sea bass, *Dicentrarchus labrax* (L.). The losses in the field can vary from 11 to 60 % in sea cages and from 11 to 50% in tanks.

The aim of this work is to evaluate the efficacy of a whole inactivated vaccine prototype in a *in vivo* challenge trial.

Two replicates consisting of 30 *D.labrax* specimens weigting 20 grams were immunized (IM injection) with formalin-inactivated supernatant from virus infected cell cultures,and two replicates of 30 fish were mock vaccinated with PBS. Fish were kept in 110 litres fiberglass acquaria with 22‰ salt water at 21° C (gradually raised up to 26° C before challenge).

After 30 days, each fish was intramuscularly injected with infected cell culture supernatant of reference challenge virus.

Classical clinical signs appeared in the mock vaccinated groups, while no signs were observed in the vaccinated fish. Mortality was recorded for 28 days, and at the end of the experiment fish were euthanized and weighed. Relative percentage of survival (RPS) was 76% with 47% mortality in the mock vaccinated. Fish brain tissue was examined for VNN using routine diagnostic cell culture and PCR techniques. Virus was re-isolated in 1 survivor from the vaccinated group and in all the survivors from the mock vaccinated group. Surprisingly, no neutralizing antibody activity was demonstrated in any serum samples collected at the end of the experiment. The prototype vaccine was demonstrated to be effective in reducing mortality, clinical appearance of the disease, and infection prevalence. Moreover fish vaccinated demonstrated a better growth performance compared to mock vaccinated ones.