

PREVENTION OF VER IN SOLE USING PTS AND PTSO-SUPPLEMENTED DIETS

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Introduction

Viral encephalopathy and retinopathy (VER), caused by nervous necrosis virus (NNV), is a major viral disease affecting Senegalese sole (*Solea senegalensis*) in Southern European aquaculture. Four species have been described (SJNNV, RGNNV, TPNNV, and BFNNV), along with highly virulent reassortants like RGNNV/SJNNV. Recently, a reassortant strain called SsNNV19 was isolated during an outbreak in Southwestern Spain. Prophylactic strategies developed include vaccines and functional feeds. In this study, feeds supplemented with *Allium* spp.-derived compounds (PTS and PTSO) were tested to evaluate their protective effects against VER by analyzing post-infection mortality and host oxidative stress and inflammatory responses.

Materials and Methods

Sole juveniles fed 30 days at 6% biomass

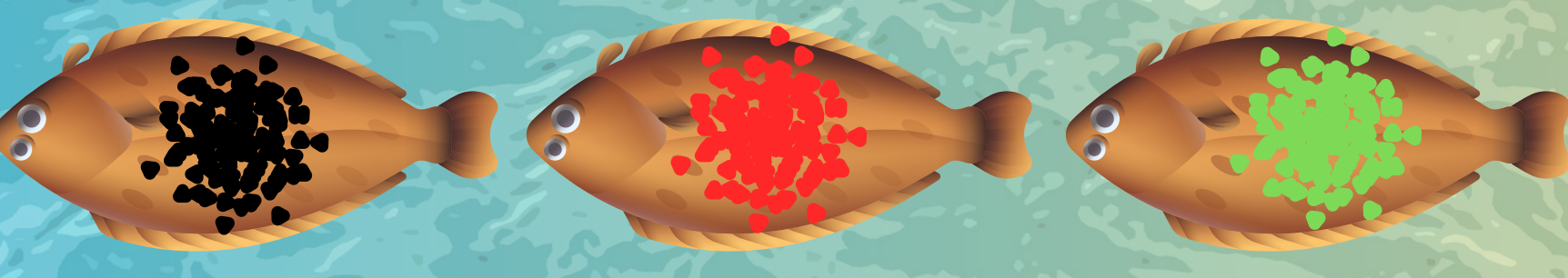
Control

PTS

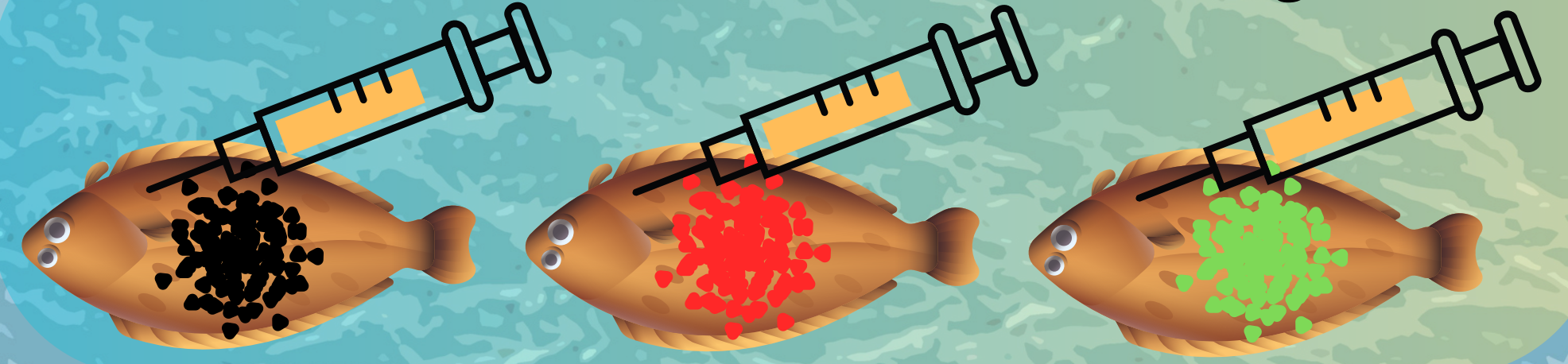
PTSO



Liver and intestine sampling for qPCR



Infection with SsNNV19 (10^5 TCID₅₀/g fish)



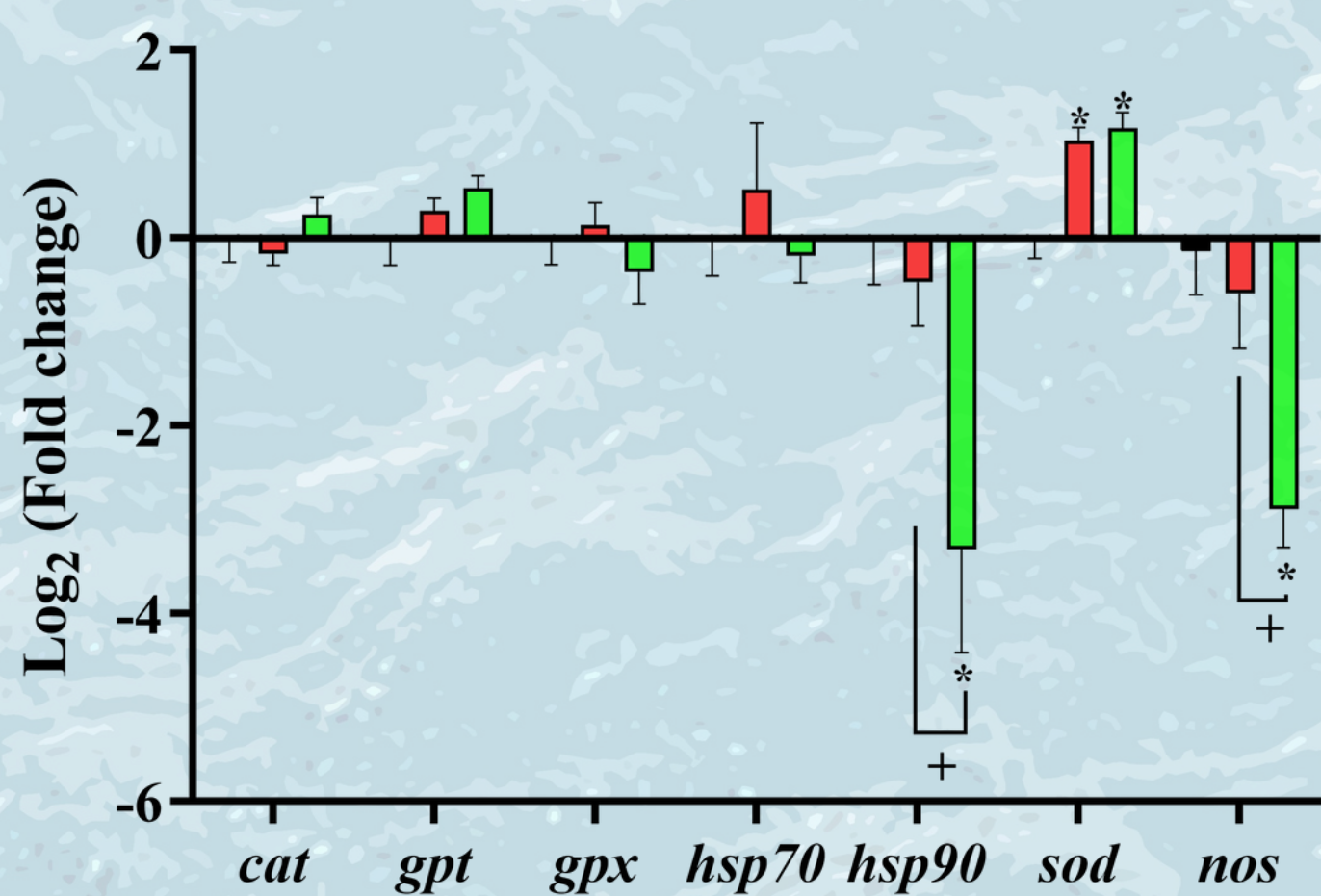
Liver
Oxidative stress

Intestine
Inflammatory response
apoptosis

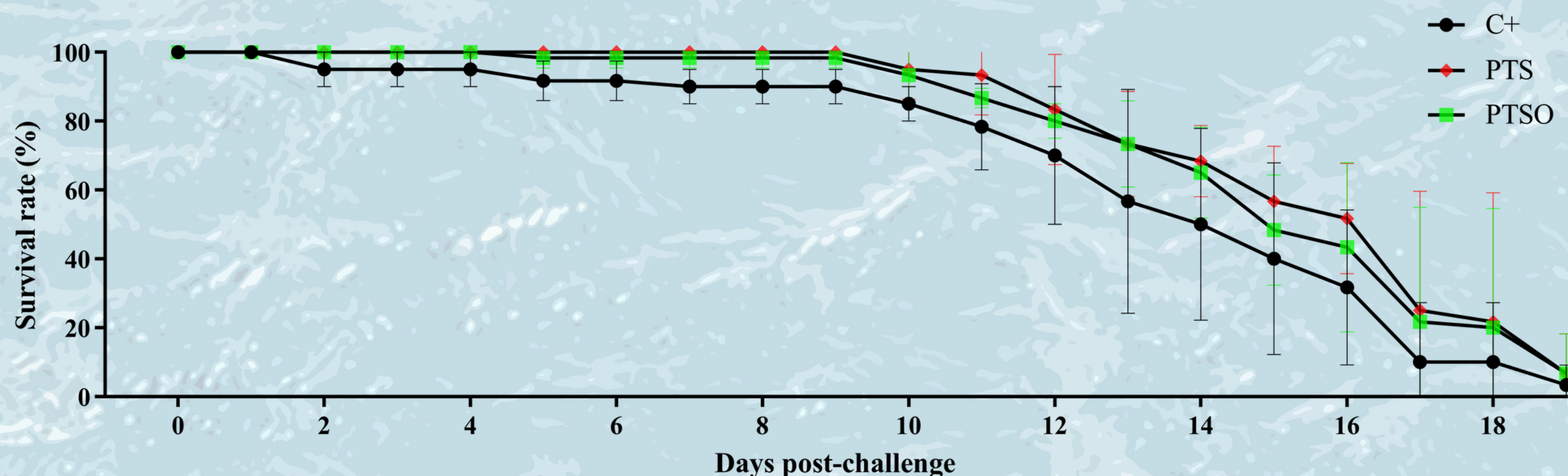
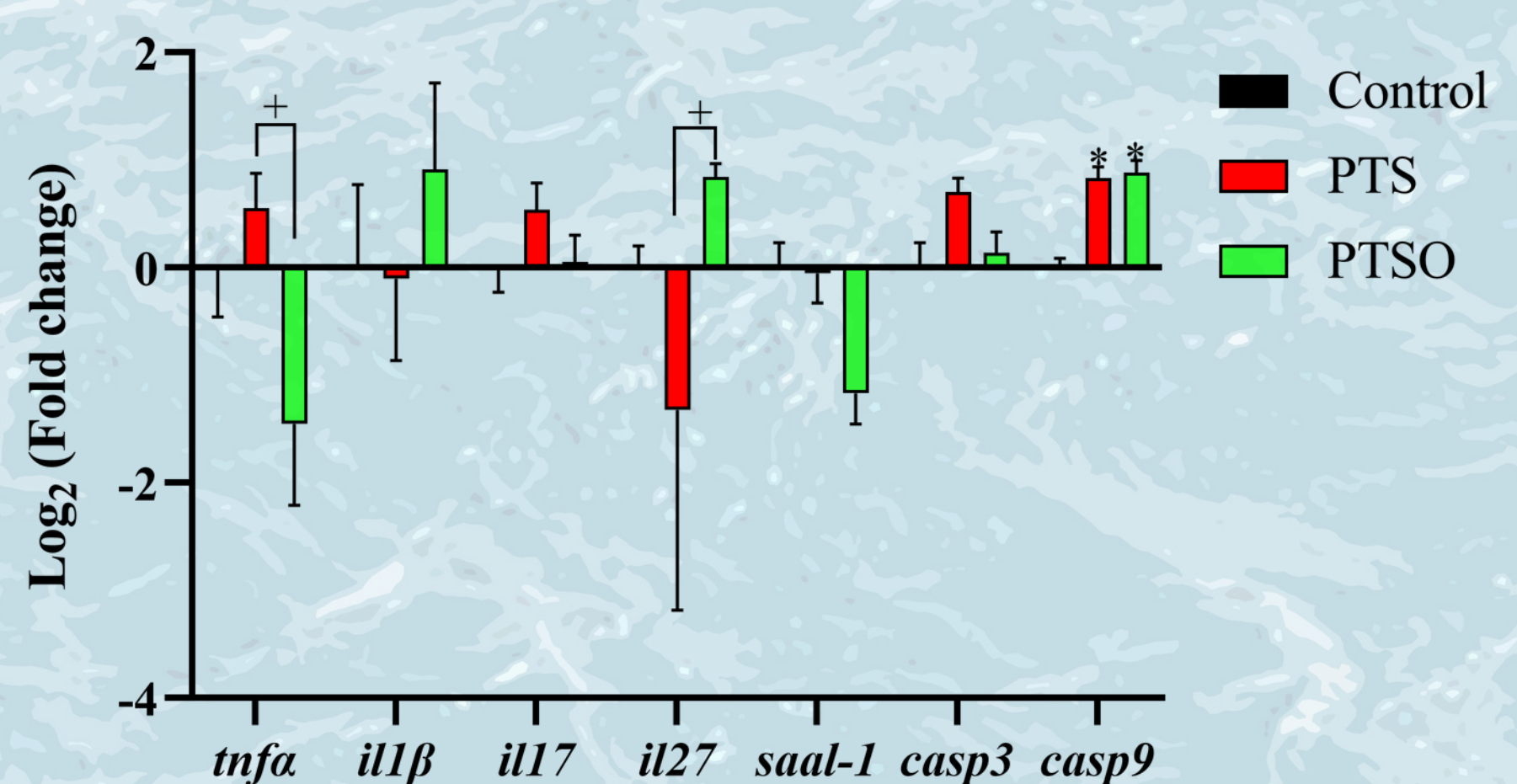
Mortality

Results

Liver



Intestine



Conclusions

1. Dietary supplementation with PTS and, in particular, PTSO modulates the expression of genes related to oxidative stress in the liver, which could lead to an improvement in the health status of Senegalese sole specimens.
2. In intestinal samples, no induction of genes related to the inflammatory response was observed after 30 days of feeding with the supplemented diets. Nevertheless, the induction of the gene encoding caspase-9, associated with apoptosis, in both diets could indicate a certain degree of intestinal toxicity of these compounds.
3. Although these compounds do not confer direct protection, they may be used in conjunction with other strategies, such as vaccination, since the mitigation of oxidative stress, together with the reduction of early mortality, can potentiate the efficacy of vaccines.

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