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Probiotics boosting fish health: the modes of action

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INTRODUCTION

Infectious diseases in early life stages of fish constitute a limiting factor in the development of the aquaculture production. Up till recently, disease control has principally concentrated on the use of antibiotics, leading to antibiotic resistance. With the increasing demand for an environment-friendly aquaculture approach, the use of probiotics in aquaculture is now widely gaining acceptance.

However, there is a lack of knowledge on the modes of action of the probiotics and on their interaction with the aquatic host, especially during the larval stages.

AIMS

→ select, develop and optimize probiotic isolates, based on both in vitro and in vivo observations.
→ unravel the modes of action of the probionts

RESULTS

300 isolates were acquired from larval and adult Seas bass (*Dicentrarchus labrax*) and screened for probiotic potential:

→ easy culturable
→ Non-invasive or toxic
→ inhibition of the growth of pathogens
→ adhesion to intestinal mucus
→ adhesion to intestinal epithelium

FURTHER RESEARCH

→ *In vivo* research will be performed to determine the beneficial effects of the selected probionts.
→ The modes of action of the selected probionts will be investigated, with a focus on disease resistance.
→ Sea bass larvae will be cultured under gnotobiotic conditions, an important tool to unravel the complex host–microbe interactions.
→ The generated data will assist in developing strategies for better larval management through the manipulation of the intestinal microbial flora.