Positive correlation between Aeromonas salmonicida vaccine antigen concentration and protection in vaccinated rainbow trout Oncorhynchus mykiss evaluated by a tail fin infection model

Rainbow trout, Oncorhynchus mykiss (Walbaum), are able to raise a protective immune response against Aeromonas salmonicida subsp. salmonicida (AS) following injection vaccination with commercial vaccines containing formalin-killed bacteria, but the protection is often suboptimal under Danish mariculture conditions. We elucidated whether protection can be improved by increasing the concentration of antigen (formalin-killed bacteria) in the vaccine. Rainbow trout juveniles were vaccinated by intraperitoneal (i.p.) injection with a bacterin of Aeromonas salmonicida subsp. salmonicida strain 090710-1/23 in combination with Vibrio anguillarum serotypes O1 and O2a supplemented with an oil adjuvant. Three concentrations of AS antigens were applied. Fish were subsequently challenged with the homologous bacterial strain administered by perforation of the tail fin epidermis and 60-s contact with live A. salmonicida bacteria. It was shown that protection and antibody production in exposed fish were positively correlated to the AS antigen concentration in the vaccine.

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