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## Augmentation of the immune response of Atlantic salmon through the oral delivery of alginate encapsulated salmon rickettsial septicaemia antigens

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Salmon rickettsial septicaemia (SRS) is the infectious disease that produces the highest losses in the Chilean salmon industry. Disease outbreaks continue to emerge despite the use of vaccines and antibiotics. Therefore, as a new strategy for the control of SRS outbreaks, in this study we evaluated the effect of Alginate-Encapsulated SRS Antigens (AESA) incorporated in the feed as an oral vaccine to induce the immune response of Atlantic salmon. 960 healthy Atlantic salmon (40g) were distributed into three groups (Injectable vaccine, oral vaccine high dose, oral vaccine low dose) with four tanks being assigned to each group. The feed intake was assessed during the entire trial. To evaluate the effect of the experimental feed on the fish immune system, blood samples were taken at four sampling points (0 degree days post vaccination (DD), 300DD, 600DD and 800DD). The *P. salmonis* specific IgM levels in blood plasma were measured by ELISA. During the vaccination period, the feed intake rates were 100% for all groups indicating that the addition of AESA did not affect the palatability of the fish feed. The oral vaccine effectively enhanced the immune response of fish. There was a significant increase in the IgM levels at 800DD for both experimental groups. Furthermore, there were no significant differences when comparing the IgM levels of the experimental groups with those of the injectable vaccine. These findings suggest that AESA incorporated in the feed can be an effective alternative to enhance the immune response in Atlantic salmon.

### Biography

Daniela Sotomayor Gerding is a fourth year student in the Doctoral Program in Sciences of Natural Resources, at University of La Frontera, Temuco, Chile. She has a Master's degree in Engineering Sciences and has a professional degree in Civil Engineering in Biotechnology. She has focused her research on the development of new oral delivery systems for bioactive compounds through microencapsulation techniques and she is currently working in collaboration with the company Cargill Aqua Nutrition in the development of a new oral delivery system for immunostimulants against *Piscirickettsia salmonis* infections in Atlantic salmon.

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