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**THESIS**

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| **TITLE** | **Biological control of *Saprolegnia* infection in salmonid aquaculture** |
| RESEARCH QUESTION | To develop biologically-based strategies for management, prophylaxis and treatment of Saprolegniosis in aquaculture |
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| LOCATION | Aquatic Research Facility, Carus building, Wageningen University |
| PERIOD | From Dec. 2013 or Jan. 2014 to May 2014 |
| LINK FOR MORE INFORMATION LINK IS MADE BY AFI SECRETARIAT! | |

**MORE INFORMATION (if available)**

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| SHORT DESCRIPTION |
| Saprolegniosis is a devastating oomycete disease of fish and amphibians1, causing substantial economic and environmental damage in aquaculture and natural ecosystems. The causal agent of Saprolegniosis is *Saprolegnia* species, including *Saprolegnia parasitica* and *S. diclina.* Current control measures include a limited number of chemotherapeutics and disinfectants, e.g. bronopol, hydrogen peroxide and formaldehyde. However, these chemicals have adverse environmental effects or are not effective enough to fully control Saprolegniosis. Hence, there is an urgent need to develop alternative and sustainable control measures to combat Saprolegniosis. |

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| RESEARCH AIM/ SCOPE |
| **Materials and methods:** Three bacterial isolates were isolated from salmon egg incubation water and salmon. These bacteria showed inhibitory activity against *Saprolegnia* hyphal growth *in vitro*. According to a preliminary *in vivo* test, they showed protective activity on salmon eggs in the presence of *Saprolegnia*. We will set up salmon egg experiments in the coming winter to test the activity of these isolates against *Saprolegnia*. Furthermore, you will also test the activity of bioactive compounds (i.e. cyclic lipopeptides2) produced by beneficial bacteria.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  References:  1. van West, P. *Saprolegnia parasitica*, an oomycete pathogen with a fishy appetite: new challenges for an old problem. Mycologist 20, 99-104 (2006).  2. van de Mortel, J. E., Ha, T., Govers, F. & Raaijmakers, J. M. Cellular Responses of the Late Blight Pathogen *Phytophthora infestans* to Cyclic Lipopeptide Surfactants and Their Dependence on G Proteins. Applied and Environmental Microbiology 75, 4950-4957 (2009) |

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| REQUIREMENTS |
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| OTHER INFORMATION |
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