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To Whom It May Concern,

Abstract from the Post-doctoral work placement of Dr Ali Reza Faruk at the University of Aberdeen.

### **Molecular characterisation of Arctic and European strains of *Saprolegnia***

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*Saprolegnia parasitica* is one of the most important and devastating fish pathogens in the world. It causes Saprolegniosis on many fish species including salmon and trout. It is responsible for millions of dollar losses to the aquaculture business worldwide. Previously, *Saprolegnia* was kept under control with malachite green, an organic dye that is very efficient at killing the pathogen. However, the use of malachite green has been banned around the world, due to its carcinogenic and toxicological effects. This has resulted in dramatic recrudescence of *Saprolegnia* infections. *S. parasitica* is an oomycete belonging to the group of Stramenopiles (Heterokonts), which also includes the golden-brown algae and diatoms.

The long-term objective is to develop new and effective strategies to control *Saprolegnia* infections in aquaculture. The overall objective of this project is to molecularly characterise several strains from *Saprolegnia* that were isolated in the Arctic and in a hatchery in the United Kingdom. Furthermore we wanted to find out how the disease spreads through the hatchery. In order to investigate which species are found in the hatchery, bait experiments were set up. Similarly, baiting experiments were taking place in Baffin Island, Canada. ITS sequencing was performed to identify the isolated species, which included *S. parasitica*, and *S. diclina* among other species, and a novel Arctic *Pythium* species. We then set out to characterise these strains further to investigate whether these species can infect salmonid eggs and a fish cell line derived from rainbow trout. From the baiting experiments done so far, we have obtained a good idea how the disease is able to spread through the hatchery. However, some of this research is still ongoing, but should be completed within the next few weeks.

Yours Sincerely,

Dr Pieter van West  
Reader in Molecular Mycology