

PhD title and study topic:

“Understanding microbiome linkages to C/N/P cycling and their impact on carbon sequestration and greenhouse gas emissions in New Zealand pasture soils”

University of Otago, Department of Microbiology and Immunology

Host Institute and Supervisor:

1. University of Otago, Department of Microbiology and Immunology,
Dr. Sergio Morales (main supervisor)
2. Lincoln University,
Dr. Tim Clough (co-supervisor)

NZ-GRADS Project:

Greenhouse gases emission and carbon storage pose a challenge to the modern world and further generations because these issues are strongly related to the future of our planet. My PhD thesis will focus on agricultural soils, studying their microbiome and investigating how soil bacteria influence global biogeochemical cycles and greenhouse gases emission as well as understanding linkages between C/N/P cycles. Although management of agroecosystems to enhance both soil and subsoil organic carbon storage could potentially be a strategy to mitigate climate change, the mechanisms of interactions between soil organic carbon and other nutrients, such as nitrogen and phosphorus, have been barely investigated.

Exactly this topic brought me to microbiology many years ago when I started to study soil science, and now I am looking forward to investigating it, applying everything I have learned and to develop my skills in bioinformatics as it will be an important part of our research.

My research will fill the gap in knowledge on the effect of both environmental and microbial factors on soil organic carbon sequestration, which may lead to the development of novel techniques of land use aimed at reducing greenhouse gases emissions as well as favouring soil fertility.

About you...

I have come from Moscow, Russia. I completed my previous degree at Lomonosov Moscow State University, Faculty of Soil Science. In terms of science, I am interested in environmental microbiology, microbial ecology, microbial biofilms, and data processing. Besides, I enjoy playing board and video games, collecting stuff and simply walking around with a camera.

In the future, I hope to participate in multiple conferences, giving a speech on my research and communicate the importance of my topic. The greatest outcome for me would be developing a

new sustainable agricultural practice which would benefit New Zealand's greenhouse gases emission as well as address the global climate change challenge.

Favourite quote...

"Do or do not. There is no try." - Master Yoda, Star Wars