



Katelyn Boase

Research Area: Microbial Ecology and Molecular Biology



Brief Summary

Acidic saline environments are described as harbouring one of the most biologically challenging waters found on Earth; however, are relatively understudied. They contain high concentrations of salts, iron, sulfur, (heavy) metals and high levels of UV exposure. The genomic study of such environments has the capability to aid in our understanding of the evolution of dual acid and saline tolerance, as well as to enable the identification and potentially isolation and characterisation of halophilic and/or acidophilic microbes suited to biotechnological applications such as biomining. We aim to study the microbial ecology of a number of acidic saline lakes in the Yilgarn Craton of Western Australia using culture-independent (metagenomics) and culture-dependent approaches, and geochemical and physical analysis of lake sediments and waters. The microbial and environmental study of these lakes will provide insight into: the functioning and evolution of dual acid and salt tolerance, the composition of microbial populations in acidic saline environments and how they function, and the biotechnological/industrial applications of haloacidophiles.

Education: Bachelor of Science (Molecular Genetics and Biotechnology), Curtin University

Research interests: Environmental microbiology, Extremophiles, Biomining.

Thesis title: Microbial Life of Acidic Hypersaline Lakes: Extreme life in extreme environments.

Supervisors: Prof. Elizabeth Watkin and Dr. Talitha Santini.

Conferences: AusME 2019, Microbial ecology of an acid saline lake: A potential source of biomining organisms.

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