

## **Unexplored bacterial diversity and metabolic potential within South African scalding springs**

Scalding springs from Western Cape are unique extreme environments in South Africa. These represent an 'intermediate zone' when compared to mesophilic springs (i.e. Free State and Limpopo, 30°C to 45°C) and true high temperature (i.e., boiling, >100 °C) thermal springs. Therefore, these singular ecosystems are windows to the extreme habitats of the deep subsurface, and could provide answers of unknown underground life and its biogeochemical activity in the limited range of terrestrial scalding springs. However, these microcosms and their bacterial and especially archaeal diversities have hitherto been largely neglected in scientific studies. This study, therefore, aims to study the bacterial and archae community composition and diversity in "scalding springs" located in Western Cape Province, South Africa. In addition, this project seeks to improve our understanding about the influence of the scalding spring's physicochemical properties on the microbial diversity. Since these specific ecological parameters (high temperature, alkalinity, and limited carbon sources, among others) might favour the species diversity and richness. The metagenomics sequence data will then be mined for novel heatstable hydrogenases with biotechnological applications in enzymatic biofuel cell (EBFC).