What are the impacts of global climate change on biodiversity and carbon functionality in areas subject to increased aridity?

T.P. Makhalanyane, University of Pretoria
FBIS160603167712

Global change is a major threat to the biodiversity and functioning of natural ecosystems. These effects are more pronounced in more vulnerable areas, such as arid systems. However, while the consequences of increased aridity for plant and animal communities are relatively well understood, there is almost no information on the consequences of increased aridity on microbial communities. More specifically, we do not know how an increase in aridity is likely to influence the relationship between microbial biodiversity and ecosystem functionality. This is hampered because we lack fundamental biodiversity data required for establishing a baseline for interrogating the effects of aridity on microbial biodiversity and function. To break this gap of knowledge we propose a broad survey of microbial (bacteria, archaea, fungi and protista) communities along a West-East aridity gradient across South Africa. For microbial communities it is well established that metadata are crucial for validating biodiversity and functionality trends, consequently, soil respiration measurements and physicochemical analysis will also be generated for all sampling localities.