

African microalgae biodiversity

Global warming and extended human industrial activity have a destructive effect on sustainability of natural ecosystems. To understand the dimension of global changes and assess the efficacy of ecological remediation measures, new more sensitive, fast and reliable techniques of biodiversity monitoring powered by high-throughput sequencing techniques are of demand. Soil and fresh-water microalgae form a productive basis of all ecosystems and they are first to react to all types of harmful impacts jeopardizing ecological sustainability. This project aims at creation of snapshots of diversity of indigenous algae species in two representative South African spots: the Highveld National Park and uKhahlamba-Drakensberg National Park, which will be documented by a collection of DNA barcoded samples of environmental isolates. Genetic barcodes of indicative strains of indigenous algae microflora suitable for monitoring alarming changes in biodiversity of ecosystems will be obtained and made available through international barcoding portals (AlgaeBase, Algae World, CBOL and BOLD Barcode of Life systems) and locally in South African National Biodiversity Institute (SANBI) and the African Centre for DNA Barcoding (ACDB). The success of this project will be achieved through an established collaboration between the Botany Department at the North-West University (Potchefstroom) and the Centre for Bioinformatics and Computational Biology (CBCB) at the University of Pretoria.