

## NITheCS COLLOQUIUM:

# The Rooibos Genomics Program

Dr Uljana Hesse (University of the Western Cape)

**Monday, 17 October 2022 | 16h00 – 17h00 SAST**

### ABSTRACT

While plant genome analysis is gaining speed worldwide, few plant genomes have been sequenced and analysed on the African continent. Yet, this information holds the potential to transform diverse industries: it unlocks medicinally and industrially relevant biosynthesis pathways for bioprospecting and can boost innovation of plant breeding and plant protection strategies.

Considering that South Africa is home to the highly diverse Cape Floristic Region, local establishment of methods for plant genome analysis is essential. The Medicinal Plant Genomics Program was initiated at UWC in 2016 with the sequencing of the diverse transcriptomes and the genome of rooibos (*Aspalathus linearis*); an endemic South African medicinal plant species commonly known as a beverage – rooibos tea.

Here, I provide an overview on the rooibos genomics program, spanning plant sampling in the Cederberg Mountains, low-cost biochemical screening, genome size estimation, Illumina and MinION sequencing, and biocomputational analysis of the sequencing data that is taking place at SANBI-UWC and CHPC.

### BIOGRAPHY

Dr Uljana Hesse is a Senior Lecturer at the Department of Biotechnology at the University of the Western Cape (UWC).

She is a specialist in genomics (h-index 14, C-rated by the National Research Foundation) with extensive hands-on expertise in crop production, microbiology, biotechnology and bioinformatics acquired in nearly 25 years of agriculture-related research. Her particular interests are plants and plant-microbe interactions, and the study of their genomes.

She conducted her research at leading institutions in the field, including the Plant Pathology Department at the University of Kentucky (USA), Faculty of Forestry at the University of British Columbia (Canada), Michael Smith Genome Sciences Centre (Canada), SANBI-UWC and IMBM-UWC.

To date, she has published 21 scientific papers (14 leading or last author publications) in peer-reviewed journals (including *Nature*, *PLOS Genetics*, *PNAS* and *BMC Genomics*), 4 book chapters and numerous conference proceedings.

Since 2016, she has been establishing the Medicinal Plants Genomics Program at UWC, focusing on the analysis of the genome and diverse transcriptomes of rooibos (*Aspalathus linearis*).



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