NRF-SAIAB Seminar Series 2025

Thursday 4 September 2025, 10:30am (SAST)

Venue: Lecture Room, NRF-SAIAB, Somerset Street, Makhanda

Zoom Registration link:
https://zoom.us/meeting/register/e8dFRKvTSE-r95oruO8GQQ
Passcode: 345931

Vuyolwethu Mxo
Research Student, NRF-SAIAB

Cultivation of *Cyperus textilis:* Eco-Engineering for Sustainable Coastal Solutions

Coastal landscapes are increasingly modified by artificial structures such as seawalls, driven by urban expansion, tourism, sea-level rise, and extreme weather events. Ecological engineering provides sustainable alternatives through nature-based solutions that integrate ecological processes with built infrastructure. *Cyperus textilis*, traditionally used in South Africa for weaving mats and baskets, presents a promising resource for such applications. When woven into mats and attached to hard coastal surfaces, *C. textilis* can enhance or partially replace conventional grey infrastructure, promoting biodiversity and sustainable shoreline management. However, large-scale application raises concern about overharvesting, underscoring the importance of sustainable cultivation. This study examined *C. textilis* growth over 10 weeks under greenhouse conditions, comparing soil and hydroponic systems at three fertilizer concentrations (0, 50, 100 mg/L). Growth was significantly influenced by cultivation method, nutrient levels, and time. Hydroponics improved culm density and width, while soil produced taller plants. These findings support scalable eco-engineering practices and conservation strategies.