poor farmers in Africa and are managed by habitat management or push–pull strategies, in which *P. purpureum* cultivars and hybrids are used as a trap crop. The AFLP analysis of 145 individuals, collected mainly in Africa, a few from the USA and one from China, were done with primer combinations *Mlu*I/*Mse*I on an ABI 3130 *x*l Genetic Analyzer. The cultivars did not cluster according to geographical origin, and cultivars of a given name did not always cluster together, indicating diversity within the cultivar or misidentifications. This study suggests poor gene pool management at nurseries which negates the potential of AFLPs as a powerful tool for DNA fingerprinting Napier grass. The need to properly administer gene pool collections cannot be stressed enough.

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Mite (Acari) diversity in the infructescences of *Protea* species

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The Cape Floristic Region (CFR) is one of the 36 recognized international biodiversity hotspots and includes both the Succulent Karoo and Fynbos Biomes. Within the CFR, the Fynbos Biome is not only an important plant species-diversity asset, but is also of substantial economic importance in the beekeeping, eco-tourism and the cut-flower industries. *Protea* species frequently dominante fynbos vegetation and are the most important genera in the cut-flower industry. It has been shown that mites are important vectors in complex Protea–Ophiostomatoid fungal mutualisms present in southern Africa. They may affect these systems either as dispersal agents, as fungivores protecting seeds against fungi or as predators acting as bio-control agents. Mite systematics and ecology in general, and in fynbos in particular, is very understudied. Virtually nothing is known about their interaction with *Protea* species. This preliminary study sets out to investigate the diversity of mites associated with *Protea* species in the Fynbos Biome. The key questions addressed is a) how do environmental and ecological factors influence mite communities within *Protea* spp. infructescences? b) is there any evidence of co-evolution between mites and *Protea?* and finally, c) does the phylogenetic tree of the mite genus *Tarsonemus* correlate with that of the genus *Protea*. This study aims to determine the key elements of the fynbos–protea–mite system and will form the basis to guide future studies.

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Anti-HIV screening of ethnobotanical selected SA plants

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Six ethnobotanical selected medicinal plants used in the treatment of sexually transmitted diseases were screened for their anti-HIV activity using the MAGI cell assay. The plants investigated were *Elaeodendron transvaalense* (roots, stem and leaves), *Faurea saligna* (roots), *Parinari curatellifolia* (stem), *Senna petersiana* (Pods), *Terminalia sericea* (roots) and *Xanthoxylum dayvi* (leaves). The ethanol root extract of *E. transvaalense* (IC_{50}=0.01 ng/ml), *Terminalia sericea* (IC_{50}=0.6 ng/ml) and *Xanthoxylum dayvi* (IC_{50}=1.0 ng/ml) showed significant anti-HIV activity. The cytotoxicity of all the extracts was also determined on a CCK5 cell line using the Dojindo cell counting kit-8 (CCK-8). Only the leaves extracts of *E. transvaalense* showed to be toxic at the lowest concentration tested (0.1 ng/ml).

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Genetic relationships between South African *Solanum retroflexum* and other related species using partial 18S sequencing

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The *Solanum nigrum* complex is an emerging, important food source in parts of Africa. Yet in Europe the plant carries a negative, poisonous stigma. It is now believed that the edible plants, *S. americanum, S. scabrum, S. villosum* and *S. retroflexum* in some parts of Africa belongs to an intraspecific taxon of the edible *S. scabrum*, rather than the poisonous *S. nigrum.* Genotyping of selected *Solanum retroflexum* as well as related species were performed using Diversity Array Technology. Based on the 2024 polymorphic features identified with DArT the accessions located in the *Solanum nigrum* complex were divided into 2 distinct groups, separating serrated-leaf *Solanum retroflexum* from smooth-leaf *Solanum chenopodioides.* These 2 groups were again distinct from a group of *Solanum sp.* containing small berries. An additional analysis was performed by sequencing the 18S ITS region of all the accessions. This one gene sequencing was compared to the whole genome DArT analysis and similar Neighbor-joining groups were obtained. The aim of this study was to determine if the 18S ITS region would be a suitable candidate gene for single gene genotyping of *Solanum sp.* The sequencing analyses were subsequently expanded and the results obtained after analyzing 18 various *Solanum* sp. indicated that relatedness based on morphological typing could be validated by sequencing the single 18S ITS gene.

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Alternate explants for germplasm cryopreservation of recalcitrant-seeded species: Problems and perspectives

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Many African plant species are reported to produce short-lived, recalcitrant (desiccation-sensitive) seeds. Long-term storage is impossible for these seeds, and hydrated storage facilitates viability retention for short periods only. The only option for long-term conservation of the genetic resources of recalcitrant-seeded species is by cryostorage — generally in liquid nitrogen. Excised embryonic axes are usually amenable for cryopreservation. However, in several cases, embryonic axes of mature recalcitrant seeds are themselves large structures and therefore cannot be used as explants for cryostorage. In other cases, even if embryonic axes are small, the shoot apices have proved to be lethally affected by dehydration and liquid nitrogen immersion. In all such species, only explants alternative to zygotic axes can be used for cryopreservation, but these must have a high capacity for plantlet formation once retrieved from cryostorage. The current contribution discusses our experience, and highlights problems encountered with the use of nodal explants and somatic embryos as alternative explants for cryopreservation. Success was attained in developing protocols for establishment of sterile *in vitro* cultures from seeds, multiplication of cultures using RITA® vessels for faster bulking up of the bud clusters and *in vitro* rooting of shoots. But further pre-treatments like flash-drying, sucrose pre-culturing followed by different cryopreservation strategies were not successful, possibly because of the very high water contents of the tissues, even after different pre-treatments. Research on cryopreservation of nodal explants and somatic embryos of *Theobroma cacao*, *Barringtonia racemosa*, *Garcinia*