

## UCT researchers aim to design drought-resistant crop plants

**With Southern Africa facing severe drought and famine, scientists look ahead towards designing crops that are more disease and drought-resistant.**

Researchers from the University of Cape Town's (UCT's) Department of Botany are aiming to design crop plants that are more disease and drought-resistant.

Associate Professor Jill Farrant and her team are investigating the genes involved in desiccation tolerance and immunity to disease.

The team are using "resurrection plants", a type unique to southern Africa, which can tolerate extreme water loss for up to two years. Once watered, they "resurrect", turning green in a few days.

"Water has become a limiting factor in world agriculture," said Prof. Farrant. "Most crops are sensitive to even mild dehydration stress. There are, however, a few genera of plants unique to southern Africa called 'resurrection plants', which can tolerate extreme water loss or desiccation. Their unique ability to withstand severe water loss (greater than 90%) makes them an ideal system to study."

*Xerophyta viscosa* and *Xerophyta humilis*, representative of the monocotyledonous resurrection plants, are being used to isolate genes that are associated with desiccation stress tolerance.

The team have isolated a number of genes, using approaches such as differential screening and microarray analysis of gene libraries, which are unregulated during drying and/or rehydration of these plants. In collaboration with Prof. Jennifer Thomson, these genes are being transferred into model "crop" species (*Digitaria Sanguinalis* and *Arabidopsis thaliana*) and will ultimately be used to transform crops such as maize, sorghum, wheat and rice for improved drought tolerance.

The project team includes Associate Professor Nicci Illing, Dr Katherine Denby and Dr Sagadevan Mundree from the Department of Molecular and Cell Biology.

by Shireen Sedres, University of Cape Town

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