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## *Geographic*

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# Decoding plants

Thanks to the efforts of Michelle van der Bank of the University of Johannesburg and a group of international scientists, a gene has been identified that distinguishes between the majority of plant species on earth.

This gene, which can be used to identify plants from just a small sample, could make it easier to catalogue different types of plants in species-rich areas like rainforests. It could also help to identify plant ingredients in powdered substances, such as those found in traditional Chinese medicines, and could assist in monitoring and preventing the illegal transportation of endangered plant species.

The team behind the discovery found that DNA sequences of the gene 'matK' differ among plant species, but are nearly identical in plants of the same species. This means that matK can provide scientists with an easy way to distinguish between different plants, even species that look similar to the human eye.

The researchers carried out two large-scale field studies. One concentrated on the diverse species of orchids found in the tropical forests of Costa Rica. The other saw Van der Bank and her team use the gene to identify trees and shrubs in the Kruger National Park in South Africa.

The matK gene may not, however, be useful in the identification of every plant species. In a few groups, additional genetic information may be required for species-level identification because hybridisation – where species cross-breed and genetic material is rearranged – may confuse the information provided by matK. ■

For more information, go to [www.uj.ac.za/botany/PlantMolecularSystematics/Laboratory/tabid/6755/Default.aspx](http://www.uj.ac.za/botany/PlantMolecularSystematics/Laboratory/tabid/6755/Default.aspx)

**TOP RIGHT** A researcher collects plant material from a baobab tree *Adansonia digitata* in the Kruger National Park.

**RIGHT** *Scadoxus puniceus*, or paintbrush lily, can be found in shady forested areas in the Kruger Park. It is one of South Africa's most striking bulbous plants and is distributed widely in the northern provinces, Free State, KwaZulu-Natal and the Eastern Cape.



MICHELLE VAN DER BANK



OLIVIER MAURIN