

# Scan this barcode and you'll get more than just a price ...

BY SHAUN SMILLIE

For nearly three years the race has been to find the gene that would open up the plant kingdom to a multitude of scientific disciplines.

It was a race to find a genetic marker to enhance the study of medicine, help in the understanding of biodiversity and even assist in the fight against crime.

Last Friday, the Department of Botany and Plant Biotechnology at the University of Johannesburg won that race, beating 11 international institutions in the process.

Dr Michelle van der Bank and colleagues, with the help of a group of international scientists, found that gene, and it is called MatK.

Their findings were published in the *Proceedings of the National Academy of Sciences* journal on Friday.

For three years scientists

## Discovery of plant marker has limitless possibilities for future uses, including helping in the fight against crime

have been trying to find the so-called "barcode gene". The gene would help identify plants that are often indistinguishable to the human eye.

What the team discovered was that DNA sequences of MatK differ among plant species but are almost identical in plants of the same species.

Now, according to Van der Bank, plant species can be easily identified.

In the future this could even be done in the field, far away from a laboratory and by people without an academic background, by using a handheld scanner; explained Van der Bank, which will utilise MatK and the animal barcode gene equivalent Cox1.

"What you will be able to do is take the wing of a butterfly or a piece of leaf and place it in the scanner. It would then identify the organism, if it is in the database," explained Van der Bank.

Species not in the database could be taken back to the lab for further analysis.

"With MatK we can identify 95% of plant species," she continued. And applications for the technology, she added, could be limitless.

Plant ingredients, particularly in powdered substances like that found in Chinese medicines, can be accurately identified and the illegal transportation of endangered plant species monitored.

Suspected drugs could be

identified on the spot.

"Plants that are in danger of becoming extinct could be rapidly identified," she added.

As part of their study, researchers conducted two large-scale field studies, one on orchids found in Costa Rica and the other on trees and shrubs in the Kruger National Park. Van der Bank's team conducted the South African study.

With the barcode gene discovered, the task now is to create a genetic database of the MatK DNA, combining the South African and Costa Rican samples.

This, in the future, will be expanded to include as many of the planet's species as possible

However, as a first step, in April an electronic DNA barcoding database for the trees and shrubs of the Kruger National Park will be launched at the Science and Network Meeting to be held in the reserve.



**PLANTED THE SEED:** Dr Michelle Van der Bank's team from the University of Johannesburg have found the MatK gene that will allow humans to distinguish between different plant species.

**PICTURE: MATTHEWS BALOYI**