

UJ part of international plant DNA project

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The University of Johannesburg (UJ) is part of an international team that has just finished work on agreeing on a standard plant DNA barcode, a statement said on Wednesday.

It was explained that DNA barcoding has been widely used to identify animal species since its invention five years ago, but plant use was delayed.

This was because of the complex nature of plant genetics and finding the right stretch of plant DNA.

"Until now, no consensus has emerged among research groups as to which DNA region, or indeed how many regions, to use," they said.

So, the botanists involved in evaluating plant barcoding regions pooled their data to agree on a standardised approach. This involved comparing the performance of the seven leading candidate DNA barcoding regions on a common set of samples.

"Barcoding provides an efficient means by which we can discover the many undescribed species that exist on earth," said Dr Michelle van der Bank, a scientist at UJ and the representative for TreeBOL Africa, which aims to build the DNA barcode database for all the species of trees of the world.

"This discovery is important because understanding biodiversity is crucial to long-term human existence on the planet. "It is extremely exciting and we can foresee that researchers around the world would eagerly begin sequencing plant species and thereby contributing to the goal to complete DNA barcodes of at least 500 000 species in the next few years."

Based on global analysis, the team of 52 scientists from 10 countries recommended that "matK" and "rbcL" -- two chloroplast genes -- are adopted as the DNA barcode for the land plants.

It will be used mainly for the identification of the many species in the world's biodiversity hotspots where a shortage of specialists hinders conservation efforts.

Other applications include identifying illegal trade in endangered species and identifying invasive organisms, poisonous species and fragmentary material in forensic investigations.

The technique will work on minute amounts of tissue and can be used on fragments of plant material, small seedlings, and in some cases digested or processed samples.

During the past two years UJ has collected around 80% of the tree species of southern Africa. One of many barcoding projects currently at UJ is the barcoding of protected timber and traded trees in Africa to assist custom officials at ports and border posts.

"We have also recently completed the barcoding project for all trees and shrubs of the Kruger National Park," said Van der Bank.

Dr Peter Hollingsworth, head of Genetics and Conservation at the Royal Botanic Garden in Edinburgh, who chaired the team, said that identification linked a plant and the accumulated information available for that species.--Sapa

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