

## UJ News



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## Team helps to "barcode" the world's plants

Johannesburg, 29 July 2009 – An international team of 52 scientists working in 10 countries, including botanists from the University of Johannesburg (UJ), has concluded a four-year effort to agree on a standard 'plant DNA barcode' to provide the foundation for the widespread use of DNA technologies to identify plants.

DNA barcoding has been widely used to identify animal species since its invention five years ago. But its use for plants was delayed 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.

For the first time, the botanists involved in evaluating plant barcoding regions have 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," Dr Michelle van der Bank, a scientist at the UJ and the representative for TreeBOL Africa. "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."

According to Dr van der Bank the team compared the performance of the seven leading candidate gene regions against three criteria: ease of obtaining DNA sequences; quality of the DNA sequences; and ability to tell species apart based on a sample of 550 species of land plants.

"Based on this global analysis we recommended that *matK* and *rbcl* - two chloroplast genes - are adopted as the DNA barcode for the land plants."

The primary application of the methodology will be 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, 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.

The methodology will also be used immediately in global projects such as Tree-BOL which aims to build the DNA barcode database for all the species of trees of the world – many of which are of economic and conservation importance.

During the past two years the UJ have collected approximately 80% of the tree species of southern Africa, which forms part of the TreeBOL Africa project and also set up several collaborated project with researchers in Africa.

"With the standardized protocol for plants we can barcode all these species (in collaboration with the Canadian Centre for DNA Barcoding, Canada) and add onto the BOLD (Barcode of Life Database) database. One of many barcoding projects currently at UJ is the barcoding of protected timber and traded trees in Africa to assist custom officials at our ports/borders. We have also recently completed the barcoding project for all trees and shrubs of the Kruger National Park," says Dr van der Bank.

Dr Peter Hollingsworth, Head of Genetics and Conservation at the Royal Botanic Garden Edinburgh, who has chaired the team, explained: "Identification is important - it is the link between a given plant and the accumulated information available for that species. It is not possible to know if a plant is common or rare, poisonous or edible, being traded legally or illegally etc., unless it can be identified. Conservation prioritisation, in particular, can be impeded by a lack of knowledge of what species grow where. But identifications can be difficult: there are a large number of plant species and some look very similar. Juvenile, non-flowering or fragmentary materials are notoriously difficult to identify."

The report appears this week in Proceedings of the National Academy of Sciences under the group authorship of the Consortium for the Barcode of Life (CBOL) Plant Working Group.

The scientific team involves 52 researchers working in 10 countries representing the following institutions: Royal Botanic Garden Edinburgh; National Center for Biotechnology Information; University of Guelph, Guelph; University of Johannesburg; Royal Botanic Gardens Kew; Smithsonian Institution; UBC Botanical Garden & Centre for Plant Research and University of British Columbia; Natural History Museum, London; Korea University; University of Toronto; Universidade Estadual de Feira de Santana; Universidad de Costa Rica; Columbus State University; University of Wisconsin; Universidad de los Andes; South African National Biodiversity Institute; Aberystwyth University; University of Cape Town; Hallym University; Seoul National University; Natural History Museum of Denmark and University of Copenhagen; Universidad Nacional Autónoma de México, Imperial College London; New York Botanical Garden.

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### Team helps to “barcode” the world’s plants

Wednesday, July 29, 2009

Johannesburg, 29 July 2009 – An international team of 52 scientists working in 10 countries, including botanists from the University of Johannesburg (UJ), has concluded a four-year effort to agree on a standard ‘plant DNA barcode’ to provide the foundation for the widespread use of DNA technologies to identify plants.

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### The New Economics of Happiness - Public Lecturer

Tuesday, July 28, 2009

The University of Johannesburg (UJ), Faculty of Economic and Financial Sciences will be hosting a public lecturer with renowned Academic Prof John Knight as the key speaker.

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### An opportunity to ask some hard questions of the court by Eusebius McKaiser

Friday, July 24, 2009

WE ARE in serious danger of missing a crucial opportunity to take stock of our constitutional jurisprudence. The reason? The saga around Judge John Hlophe’s suitability for heading the Constitutional Court is needlessly distracting. What we should be pausing over, in fact, is a much more serious question: are we happy with the Constitutional Court’s overall jurisprudential development since 1994? And, pending the answer, what does this tell us about the sort of candidates who should be picked to join the bench?

[Full Story...](#)

### New UJ Design Café and Coffee Academy proud STH students entrepreneurship initiative

Friday, July 17, 2009

Johannesburg, 17 July 2009 – The flavour and comfort of carefully roasted grinded and prepared coffee, sparkling espresso machines and the trace grounds of coffee beans, are characteristic of the funky venue when it comes to the new Design Café. Masterminds Geoff Kemper and Stuart Rogers, two STH senior students are the conceptualists and operations managers of the new Design Café incorporating the Coffee Academy at the School of Tourism and Hospitality (STH) of the University of Johannesburg (UJ).

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### Series to stir old-style discussion in Soweto

Friday, July 17, 2009

ON AUGUST 6, Reserve Bank governor Tito Mboweni will talk to Soweto’s business community and demystify “inflation targeting”, and touch on several other issues . It will be a chat directly between the governor and Soweto — and not via the demagogues who at every turn try to impose their dogmatic “what the bank must do” views on society.

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### Prestigious UJ Alumni Show featuring Maira Koutsoudakis

Thursday, July 16, 2009

Following the FADA’s inaugural *Prestigious Alumni Show* at the University of Johannesburg (UJ) last year featuring Gerry Human, Chief Creative Officer of Ogilvy SA, the Faculty is proud to announce that the 2009 exhibition will feature, Maira Koutsoudakis, the director and founder of *Life*, an award-winning, multi-disciplinary practice combining Interiors, Eco-Architecture, Creative Direction, Product and Experience Design.

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### Zuma must beware the booby-trapped calls for ‘leadership’

Wednesday, July 15, 2009

THIS is a plea to President Jacob Zuma to please ignore the hypochondriacs. These are the people who are so dependent on the idea of the leader as the “big man” that they are now having withdrawal symptoms.

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### Whites wait on the touchline to label the next black buffoon

Tuesday, July 14, 2009

FIFTEEN years after apartheid formally ended, it is time for those whites who never tire of accusing others of “playing the race card” to realise how often they do it themselves — without even noticing.

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### UJ Crime Free Day

Tuesday, July 14, 2009

The UJ Crime Free Day is an annual activity on the UJ calendar – this year it is from 4-7 August 2009 and it starts on the Kingsway Campus and ends on Soweto Campus.

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### Murray & Roberts assists with unearthing new talented researchers

Tuesday, July 14, 2009

Johannesburg, 14 July 2009 – Murray & Roberts, South Africa’s leading construction and engineering group, today announced a grant worth R960, 000, over three years, to support efforts by the University of Johannesburg (UJ) to fortify the research, innovation and advancement capacity of students on its master’s and PhD programmes.

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