News

DNA 'barcode' identified for plants

A 'barcode' gene that can be used to distinguish between the majority of plant species on Earth has been identified by scientists. The research, which was partially funded by the Defra Darwin Initiative, is published today in the *Proceedings of the National Academy of Sciences* journal.

This gene, which can be used to identify plants using a small sample, could lead to new ways of easily cataloguing different types of plants in species-rich areas like rainforests. It could also lead to accurate methods for identifying plant ingredients in powdered substances, such as in traditional Chinese medicines, and could help to monitor and prevent 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 the matK gene can provide scientists with an easy way of distinguishing between different plants, even closely related species that may look the same to the human eye.

The researchers made this discovery by analysing the DNA from different plant species. They found that when one plant species was closely related to another, differences were usually detected in the matK DNA.

The researchers, led by Dr Vincent Savolainen from Imperial College London's Department of Life Sciences and the Royal Botanic Gardens, Kew, carried out two large-scale field studies. One was on the exceptionally diverse species of orchids found in the tropical forests of Costa Rica, and the other on the trees and shrubs of the Kruger National Park in South Africa. Dr Savolainen and his colleagues in the UK worked alongside collaborators from the Universities of Johannesburg and Costa Rica who played a key role in this new discovery.

Dr Savolainen explains that in the long run the aim is to build on the genetic information his team gathered from Costa Rica and South Africa to create a genetic database of the matK DNA of as many plant species as possible, so that samples can be compared to this database and different species accurately identified.

He said

"In the future we'd like to see this idea of reading plants' genetic barcodes translated into a portable device that can be taken into any environment, which can quickly and easily analyse any plant sample's matK DNA and compare it to a vast database of information, allowing almost instantaneous identification."

Joan Ruddock, Minister for Climate Change and Biodiversity said

"This is a great breakthrough that could save many endangered plants. The Defra-funded Darwin Initiative has a reputation for producing real and lasting results and I congratulate everyone involved in this project which could have huge benefits for plant identification and conservation in the future."

Further information

- Press release on Kew website
- Darwin Initiative

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