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Barcoding of Tropical Woods

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Abstract

The method of DNA barcoding was firstly introduced by Hebert et al. (2003) to facilitate the species identification. It is a molecular method of species identification based on short region of DNA sequences. These DNA barcodes should be unique for each species. This method has since proven very effective mainly among animal species. However, further development is required for plant species. This study aims to describe the current knowledge of barcoding technique, in the field of plant identification, with a focus on tropical trees. It further aims to test the information gained by isolating DNA from dead wood material, selecting barcode loci for amplification and amplifying the isolates using. This study evaluates the positive and negative aspects of the DNA barcoding method. It shows different plant barcodes proposed and provides examples of its successes in use for barcoding wood. Moreover, this study explores the practical uses of DNA barcoding ranging including ecological studies, biosecurity, biomonitoring, biodiversity sciences, diet analysis, illegal trade and forensics, and databases in which barcode sequences are stored. Results show that out of the two DNA extraction methods (CTAB, DNeasy Mini Kit-Qiagen), CTAB method isolates greater quantity of DNA, however both methods lack in quality. The trnL approach chosen for this study has proven effective in both sequences. To improve this method, further optimisation of DNA isolation may help with better results, mainly the optimisation of 'medium sequence', more specifically, combination of the c and h primers, would prevent fragmentation of DNA and still could present enough data about species interspecific variability.

Keywords: Dead wood isolation and barcoding, DNA isolation, PCR, plant barcode, taxonomy, trnL approach

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