

# Researchers develop global timber tree barcoding library

November 17 2021, by Zhang Nannan

---



Timber forest in Xishuangbanna Tropical Botanical Garden. Credit: Xiao Yunxue

China has become a leading exporter of wood products and importer of raw materials. Illegal logging poses a major threat to biodiversity and

ecosystem services and drives deforestation. Accurate identification of species from timber is an essential step to help control illegal logging and forest loss.

DNA barcoding is regarded as a promising molecular tool for [species](#) identification using short-length, standardized DNA fragments. However, there is still no reliable DNA reference database for the economic and ecological important [timber](#) species.

In a study published in *Molecular Ecology Resources*, researchers from the Xishuangbanna Tropical Botanical Garden (XTBG) of the Chinese Academy of Sciences and their collaborators constructed a comprehensive barcode library using four commonly used barcodes (rbcL, matK, trnH-psbA, and ITS2), representing 1,550 commercially traded timber species (656 genera across 124 families) from China and internationally.

"The database includes many novel sequences that will enrich existing timber barcode databases for tropical and subtropical evergreen timber trees in China," said Prof. Li Jie, principal investigator of the study.

The researchers assessed the efficiency of four DNA barcode loci to help resolve the identity of threatened timber species from the Red List of Chinese Higher Plants. They found that the ITS2 fragment was the most efficient locus for Chinese timber [species identification](#) among the four barcodes tested, both at the species and genus level, despite its low recovery rate.

Overall, they found ITS2 is the best single marker for Chinese timber species, but the barcode combination matK+trnH-psbA+ITS2 exhibited more discrimination power to distinguish between closely related species in the dataset covering diverse internationally traded timber species.

Although DNA barcoding was not able to identify all individuals to species level identification in the study, in many cases it can provide supporting evidence incorporate with routine identification methods. DNA barcoding can also allow for rapid and accurate verification of illegally harvested organisms.

"The development of timber species [barcode](#) reference libraries provides a valuable source for several applications, including forestry management and policing, ecological investigations, and biodiversity conservation," said Li Jie.

**More information:** Jian-Lin Hu et al, Assessing candidate DNA barcodes for Chinese and internationally traded timber species, *Molecular Ecology Resources* (2021). [DOI: 10.1111/1755-0998.13546](https://doi.org/10.1111/1755-0998.13546)

Provided by Chinese Academy of Sciences

Citation: Researchers develop global timber tree barcoding library (2021, November 17)  
retrieved 5 May 2024 from  
<https://phys.org/news/2021-11-global-timber-tree-barcoding-library.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.