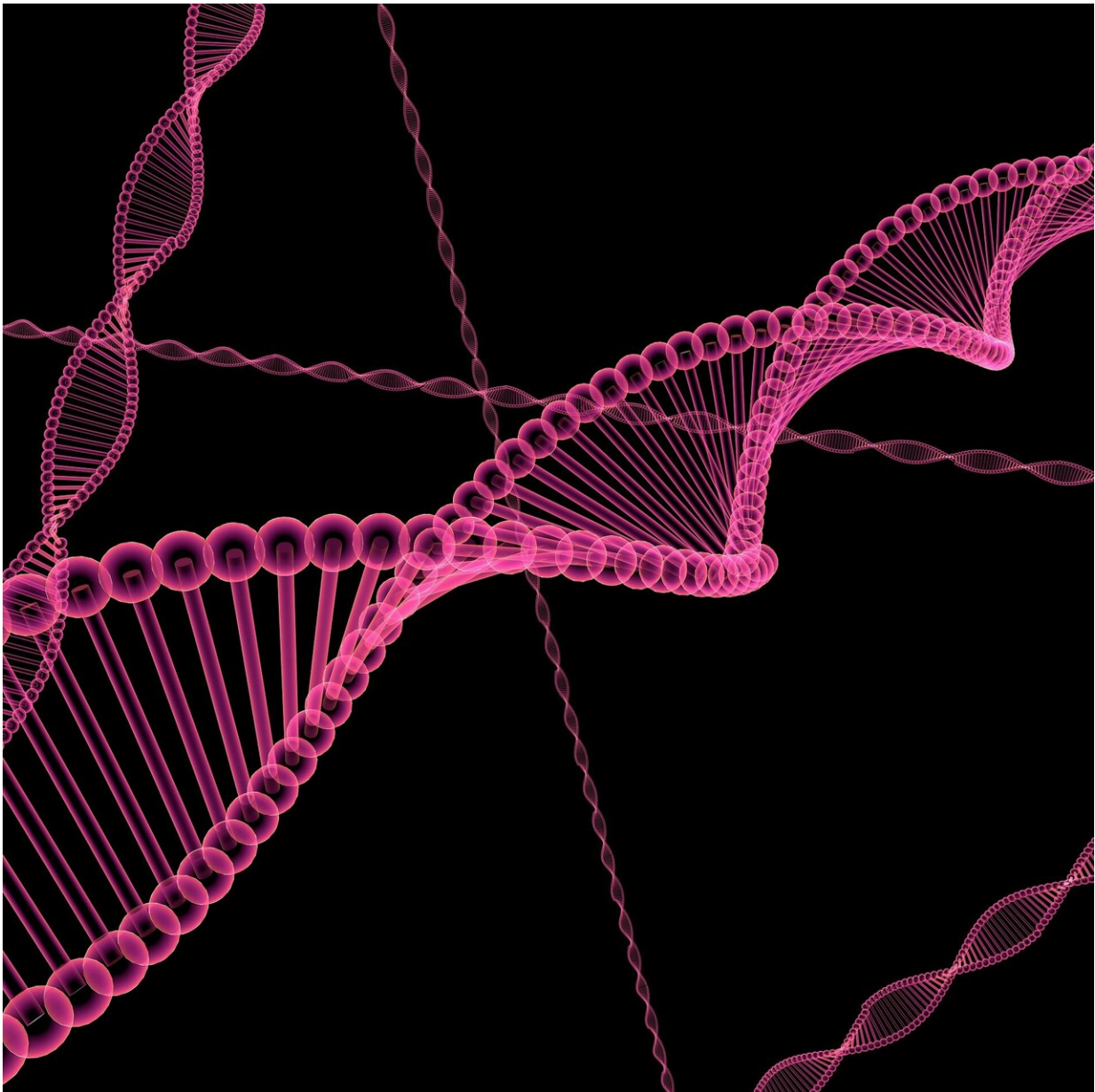


DNA barcoding used for the first time to identify genus *Caragana* in legume family

July 28 2023, by Zhang Nannan



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The genus *Caragana* in the legume family is ecologically and pharmacologically important. *Caragana* plays a key role in the cold desert ecosystem throughout the Asian continent. However, accurate identification of taxa in the genus has been challenging.

In a study published in *Journal of Systematics and Evolution*, researchers from the Xishuangbanna Tropical Botanical Garden (XTBG) of the Chinese Academy of Sciences sought to establish a DNA [barcoding](#) standard to enable reliable identification of *Caragana* species, which will aid in quality control procedures especially for highly fragmented herbal materials.

The researchers conducted the most comprehensive taxon sampling of this [genus](#). Using three analytical approaches (i.e., Pairwise Genetic Distance, Sequence Similarity and Phylogenetic Tree method), they evaluated the performance of four DNA barcoding regions, nrITS, trnH-psbA, matK, and rbcL.

They found that the nuclear ITS region was the most accurate and efficient barcode for distinguishing *Caragana* accessions/species. When used alone or in combination with trnH-psbA, it had the highest discrimination rate and can distinguish between *Caragana* species.

Unexpectedly, the previously recommended universal plant barcode rbcL + matK markers were ineffective as identifiers for *Caragana* species. Therefore, the researchers recommend the ITS alone or the concatenation of two regions (trnH-psbA + ITS) as plant barcodes in *Caragana*.

"To our knowledge, the present study is the first attempt to use DNA barcoding for Caragana and its relatives," said Liu Hongmei of XTBG.

More information: Shabir A. Rather et al, DNA barcoding of recently diverging legume genera: Assessing the temperate Asian Caragana (Fabaceae: Papilionoideae), *Journal of Systematics and Evolution* (2023). DOI: [10.1111/jse.13009](https://doi.org/10.1111/jse.13009)

Provided by Chinese Academy of Sciences

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