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Farmers' and academia's views"

Morphological characterisation of *Ricinodendron heudelotii* (Baill.) Heckel in Cameroon – potential for domestication

Marie Kalousová[1], Patrick Bustrel Choungo[2], Dennis Kyereh[3], Bohdan Lojka[4]

[1] *Czech University of Life Sciences Prague, Fac. of Tropical AgriSciences, Dept. of Crop Sciences and Agroforestry, Czech Republic*
[2] *Czech University of Life Sciences Prague, Fac. of Tropical AgriSciences, Dept. of Crop Sciences and Agroforestry, Czech Republic*
[3] *Czech University of Life Sciences Prague, Fac. of Tropical AgriSciences, Dept. of Crop Sciences and Agroforestry,*
[4] *Czech University of Life Sciences Prague, Fac. of Tropical AgriSciences, Dept. of Crop Sciences and Agroforestry, Czech Republic*

Abstract

Ricinodendron heudelotii (Baill.) Heckel, also known as 'Djansang', is found in the semi-dry wooded-savannah zone of Central and West Africa. It is one of the economically most important indigenous fruit tree species with potential for use in agroforestry systems, but it is also considered underutilised and under-researched. The kernels, which are mainly used to produce edible oil, are reported to be one of the most traded non-timber forest products (NTFPs) in Cameroon. Despite its importance, the species is still harvested from the wild/ natural populations. It lacks basic information on morphological diversity which is crucial for its domestication process. The objective of the study was therefore to evaluate morphological variability in *R. heudelotii* fruits and seeds across two regions in Cameroon, namely, the Southern and Central regions. Data were collected from a total of 50 individuals of *R. heudelotii* from four geographical populations. Ten fruits per tree were collected, evaluated and all seeds were characterised for basic morphotypes. Fruit weight, length and width, seed weight, length and width, and number of seeds per fruit were analysed using PCA, kmeans and one-way anova. The results revealed clustering roughly based on geographic origin, however, significant variations in fruit size were likewise observed among individual trees sampled ($p < 0.05$). A positive correlation was observed between fruit size and seed weight. Variations could have genetic basis that may be reflected in molecular DNA analysis currently in progress. Selection and improvement programmes focusing on trees with large fruits could lead to higher yield of seeds for oil production.

Keywords: Domestication, fruit tree, genetic diversity, morphotypes, non-timber forest products, seed oil

Contact Address: Marie Kalousová, Czech University of Life Sciences Prague, Fac. of Tropical AgriSciences, Dept. of Crop Sciences and Agroforestry, 16900 Prague, Czech Republic, e-mail: marie.kalousova@gmail.com