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Genetic Diversity of *Garcinia kola* (Heckel) in Southwest Cameroon

Marie Kalousová, Anna Manourova, Benson Agyepong

Czech University of Life Sciences Prague, Faculty of Tropical Agrisciences, Dept. of Crop Sciences and Agroforestry, Czech Republic

Abstract

Garcinia kola (Clusiaceae) is an indigenous fruit tree, originating in Western and Central Africa. It is a highly valued medicinal plant with all its parts being useful in traditional medicine. Especially the seeds are frequently used in Cameroon for treatment of a wide range of health problems (inflammation, liver cirrhosis, hepatitis, diarrhoea, headaches, etc.). Despite its frequent usage, the domestication process of this tree is at its beginning and throughout its distribution area, seeds are mostly harvested from the wild, which can lead to endangering of the species. Previous studies of *G. kola* have described the bioactive substances and nutritional content, however, information on genetic structure of existing populations crucial for domestication and conservation efforts of the species is lacking. The objective of this research was to analyse the genetic diversity of *G. kola* in Cameroon. 75 individuals from 4 populations were sampled in Southwest province of Cameroon and DNA was extracted from the seed coat. Twenty arbitrary RAPD primers were used for screening, and seven were chosen for final analysis based on polymorphism shown. PCR products were visualised on agarose gels and bands scored for presence or absence. A total number of 142 loci were obtained, with 136 of them polymorphic, showing 95.77 % polymorphism. The overall values of Nei's gene diversity and Shannon's diversity index (h=0.19, I=0.32) indicate high levels of genetic diversity in the sampled individuals. However, the index of Nei's genetic distance between populations reached very low values, showing lack of population structuring. Such values are quite typical for natural populations with low selection and domestication pressure. This study represents the first report to describe population genetics of *G. kola*. The results, together with morphological and biochemical data, can lead to better management and utilisation of *G. kola* genepool.

Keywords: Bitter cola, indigenous fruit, medicinal plants, population structure, RAPD

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