Diversity and Nutritional Characteristics of *Garcinia kola* in Southwest Cameroon

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**INTRODUCTION**

- *Garcinia kola* Heckel (Clusiaceae) is fruit tree species indigenous to West and Central Africa. The tree, commonly called bitter kola, plays a crucial role in the local ethno-medicine and belongs to the most commercialized non-timber forest products in this region¹. Each part of *G. kola* can be used as medicine.
- The most valued product are seeds which are chewed by local people to treat gastric problems or for their typical astringent taste².
- The kernels contain a wide range of useful phytochemicals such as tannins and flavonoids. Bitter kola is also rich in complex kolvion and is one of the most promising components. It has a great potential in treatment of malaria¹ and is recently studied for its therapeutic potential on benign prostatic hyperplasia³.
- However, basic information on intraspecific diversity and the exact nutritional values of the kernels are missing.

**AIMS**

Characterization of morphological diversity and nutritional status of *G. kola* populations in Southwest region of Cameroon.

**METHODOLOGY**

- Data were collected during June-July 2016 in four different locations (Kumba, Mambie, Lebialem, Tombel) in Southwest region of Cameroon.
- To examine management and utilization of *G. kola*, 50 farms were visited and 48 farmers questioned. For morphological evaluation, 403 leaves, 759 fruits and 1,821 seeds coming from 81 different locations (Kumba, Mamfe, Lebialem, Tombel) in Southwest region of Cameroon were analyzed.
- To evaluate nutritional content of the seeds, ash, moisture, crude fat, crude fibre, crude protein and nitrogen-free extractives (NFE) were determined. All laboratory analyses were performed at least in duplicates based on Commission Regulation (EC) No 152/2009.

**RESULTS**

- Most of the trees were in agroforestry systems (AFS) and purposefully planted → 53 % coming from cocoa AFS, 39 % found in homegardens and 8 % in oil palm AFS.
- Just two from 48 respondents tried to propagate the species vegetatively.
- Important source of income: 16-68 USAIR per 15 l bucket
- High level of tree-to-tree variation
- 2.4 seed per fruit on average; correlation: in heavier fruit we can expect a higher seed mass (r = 0.524)

**MOISTURE** 42.3 %

**ASH** 0.33 %

**CRUDE FAT** 1.48 %

**CRUDE PROTEIN** 6.48 %

**NUTRITIONAL VALUES**

**NFE** 78.02 %

**MORPHOLOGICAL DIVERSITY**

- ELLIPSOID
- OBLONG
- SPHERICAL
- FLATTENED
- LANCEOLATE
- TRIANGULAR
- RHOMBoidal

**CONCLUSION**

- We revealed reliable data on the nutritional values of *G. kola* seeds and made a first draft of botanical descriptors for the species.
- Diversity of morphological and nutritional characteristics within a single population is much higher than the diversity among different sample sites.
- The species has a good adaptability to various external conditions.
- Efforts detected in terms of species targeted cultivation and selection.
- Process of *G. kola* domestication is at its very beginning.
- Our results provide basics for the domestication process and future research.

**FUTURE PERSPECTIVES**

- Need for vegetative propagation methods development → superior tree multiplication, faster tree maturity
- Extension of study sites: different regions of Cameroon, other West and Central African countries
- Focus on fluctuation of secondary metabolites content in both seeds and bark
- Kolaviron and its biodiversity
- More data on population genetics and market/value chain

**REFERENCES**


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