



CONGO NETWORK

Workshop Kisangani

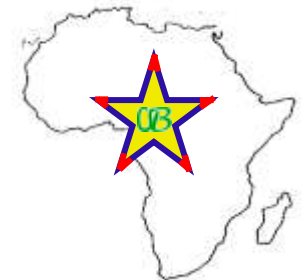
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CSB-UNIKIS

**Sustainable production of medicinal plants in Congo:
dynamics of growth and bark regeneration of *Prunus
africana* (HOOK. f) KALKMAN (Rosaceae).**

by

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Introduction

- *Prunus africana*: syn. *Pygeum africanum* in Afro-highland forests : more of 1000 m above sea level.
- National Park of Kahuzi-Biega (NPKB): more 2000 m above sea level.
- The African Cherry



Plant of *P. africana*



Flower branch



Fruit branch

Distribution of *Prunus africana* across Africa



- Bark of *Prunus africana*: used to cure the benign forms of prostate's hyperplasia, mental illness, leaves transformed in essential oils, treat intercostal pains, a purgative and a remedy for stomach pains (Zulu), used locally to heal malaria (surroundings of the park)....

What is the problem?



Trunks and branches of trees are completely debarked: overexploitation. For example on the young trees: extinction of *Prunus* populations

Debarking and regeneration

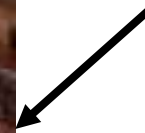
- Trunk is debarked without methodological approach. Risk of extinction of *Prunus africana*, risks also for natural ecosystem.
- The bark is exploited without a suitable knowledge of debarking techniques, that would permit the tree to survive.



Bark harvesting without sustainable management



Dry barks



Bark regeneration process → close the wound

Studies on *Prunus africana* and other medicinal plants

- Concentrated on the commercial aspect of this species, ecology, genetic diversity, debarking done by local populations or tradesmen.
- Experimental debarking and a follow-up of regeneration as well on the sought-after medicinal plants for their bark in South Africa, in Zambia, in Mozambique and Benin.

Why this research?

The present question aims to answer the following questions:

What quantity, How, How much time, When, to debark trees?

Why this question?

Anatomical research and knowledge of bark regeneration of *Prunus africana* are greatly lacking:

- phenomena at the level of cambium, xylem, phloem and outer bark
- dynamics

General aim

To fill the tremendous lack of knowledge on the carrying capacity of wild *Prunus africana* populations for local and industrial bark harvesting.

Specific objectives

- Structural survey of the plant community of *Prunus africana*,
- Determining the most suitable debarking technique for *Prunus africana*,
- Clarifying the mechanisms of bark regeneration by an anatomical analysis
- Improving the knowledge on the seasonal growth of *Prunus africana*, and its cambial activity.

Methods

- Dendrometrical data will be collected along transects,
- Additional phytosociological sampling,
- Debarking technique on a set of trunks,
- Follow-up of the bark regeneration,
- Cambial marking and analysis of the diametrical growth.

Expected results

- Structure of the forest and age distribution of *Prunus africana* in natural habitats,
- Maximal percentage of debarking ensuring the survival of the tree,
- Most favourable conditions for the bark regeneration, concerning the season of harvest and the size of the tree,
- Evolution of the annual growth of the tree and the time needed to close a wound

- Temporal sequence of the anatomical changes observed in the cambial zone, wood and bark in response to the wound following the debarking,
- Temporal meaning of the tree rings and their anatomical ground

Perspectives

- To inform local populations of the best approach method to debark trees of *Prunus africana*: sustainable harvesting of bark,
- Reforestation of degraded mountain sites,
- Encourage plantations of this species by local populations and companies.



Thank you