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RUFFORD SMALL GRANTS FOR NATURE CONSERVATION APPLICATION

Midterm-Report of the Rufford 1st Grant N°16785

TOWARD A SUSTAINABLE CONSERVATION OF COLA NITIDA AND GACINIA KOLA IN BENIN



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INTRODUCTION

In West African countries, many people rely on Non-Timber Forest Products (NTFP) for different purposes. These purposes are mainly nutritional and pharmaceutical.

Cola nitida and *Garcinia kola* count among these NTFP that are important in West Africa and especially in Benin where brief literature review enumerates them among omnipresent trees in ceremonies. Far apart, they play an important role in the regional economy as well as in the traditional ritual where are used to welcome the new-born. In the traditional weeding, they represent union and the fruitiness of the new family. During burial, they are used to say goodbye to the death and wish him the repose of his soul. However this traditional knowledge is ongoing lose and need to be understood whether a long-term species conservation and management is planned.

Considering the rapid increase of population combined with the urbanization, these species are scarce in ours farmland due the fragmentation of their habitats. Though the red list ranking, extinct in wild for *G. kola* and non- recorded for *C. nitida* these species benefited to a special the law 93_009 promulgate the 2^{nd} July 1993 that lead them on the national list of protect species. Besides Akouegninou *et al.* 2006, mentioned these species occurrence in the Southen Benin. Currently the exact entrenched tree habitats are diffused and need to be clarified with local people.

The present midterm report aims at giving an overview of the founding of the rural communities knowledge on these species. Furthermore this report will reveal the commercialization chain and the income generated in the rural household. Finally this report will enable us knowing the current entrenched region where species are still present.

2. METHODOLOGY

2.1. Study areas

This study was conducted in the southern part of the Republic of Benin, located in West Africa, between latitudes 6°10N and 12°50N and longitudes 1°E and 3°40′E. Benin is located between Nigeria on the east, Togo on the west, and is bordered by Burkina-Faso and Niger on the north. The study areas are located between latitudes 6°30Nand 6°38N and longitudes 2°30E and 2°59E (figure 1).



Figure1: study areas and visited zones

2.2. Sampling

The data collection was based on the information found in the National Flora. According to this book *G. kola* occurs in Ouidah, Porto- Novo and Pobè that are in the phyto geographic district of Littoral and Coastal and *C. nitida* occurs in Ouidah, Sakété, Porto Novo, Itchede and Adjara Houvè that are the Coastal and Pobè. Hence, each of these regions was visited and within each region population was questioned about the presence of species. Finally population of these regions have directed us in Adjohoun, Adjarra, Sakété and Ouèdo where species where really encountered. In each region, we proceed as following: First, one did different focus groups that aim at getting the knowledge of population. Second part will collect information about price and margin incomes in regional markets were species part were commercialised. Finally with traditional healers, forest census was done in each entrenched areas. Then, a total of 38 plots of 0.15ha (30*50 m²) were set.

Photo 1: Focus Group	Photo 2: Economical	Photo 3: Forest inventory with
	survey	tradition healer and local
		guide

3. RESULTS

3.1. . Genesis of tree in Benin

On contrary to the favourable the information reveals by the national flora, the rural population reveals that these species were not native from Benin humid zones. Actually, according to their common memory, *Cola nitida* and *Garcinia kola* were introduced by Netherlands colons around 1900. Furthermore French colons around 1920, introduced some stems in order to diversify their commercially goods. But even in natural forests the expected results were not found because stem were not adapted. This is the mean reason why some stem are still present in these areas. Furthermore, these species with the long term exchange with the cultural group of "Nago" were entered in our culture. But this theory should be more investigate in order to clear these species presence origins.

Nowadays, cola juvenile trees were brought back home and care by local peoples. And many taboos protected these species in the area of collections (Photo 3and 4 below).



3.2. Traditional use of G. kola and C. nitida

These species has different uses. First, these two species are chewed. According to people, the regular feeding with these cola trees' fruit has medico magic power. It prevents against cardio vascular diseases and empowers those who eat again witches. Secondary species are used to treat more than 20 different diseases. The table 1 gives an overview of diseases that can be treated. Finally these species were used to worship different Voodoo that are Sakpata, Tron, Hebiosso and the bellow image show the Tron Voodoo temple bordered by *G. kola* trees.



Photo 5: Tron Voodoo temple boarder by G. kola trees

Species	Plant parts	Diseases	Modes of preparation	Shooting Modes/Dosage
Cola nitida	Fruit	Anaemia	Maceration in palm wine	A once cup of talokpémi / day
		Anaemia/ blood purgative	-	Up to satisfaction
		Home Facilitation	-	The need
		Mycosis	Decoction	A teaspoon morning and night during three days / wash the child with up to satisfaction
		Malaria	Maceration in palm wine	A once cup of talokpémi morning and evening for three days
		Colds	Roasted with salt and chew	Up to satisfaction
		Drowsiness	Eat believed in the need	Up to satisfaction
		Cough	Eat thought with a little salt	2 Times per week
	Sheets	Anaemia	decoction	Frequent bath up to healing
		Gonorrhoea	Pulpwood (with other sheets of plants)	Take at will until satisfaction
		Diabetes	decoction	Take frequently
		Fever	Crushing	Bath 1 to 3 times / day
		Appetite	Folding	Take the filtrate for a week
		Stomach-aches	Crushing	A once cup of talokpémi morning/evening
			decoction	Take frequently until satisfaction
		Migraine	Folding	Wash the head with the filtrate in a hole and then closes
Garcinia kola	Fruits	Anaemia	Combined with the roots of <i>Morinda</i> <i>lucida</i> , with the roots of <i>Acridoocarpus</i> <i>smaethmanii</i>	Once cup of Talokpémi morning and afternoon
		Painful menstruation	Fruits decoction	A glass morning and afternoon
		Fever	Fruits maceration in Sodabi	Once cup of Talokpémi morning
		Cough	Chew	Morning and afternoon
	Roots	Sexual Weakness	Roots of aviatin (<i>Carpolobia lutea</i> G. Don,) + sheet of vivicanon (<i>Abrus</i> <i>precatorius</i>)+ powder of the walnuts of <i>G. kola</i> in a bottle+ maceration of sodabi fort	1 Glass talopkemi morning, noon and night
		Hypertension	Decoction with water fermented of akassa+sheets of <i>Jatropha curcas</i>	1 Glass talokpemi morning, noon and night for 8 days

Table 1: Description of some medicinal uses relating to each component of *C. nitida* and *G. kola*

3.3. Commercialization chain and revenue generated

The fruit of *C. nitida G. kola* are the most important part that commercialized in all surveyed markets. These markets can be classified into two categories: collection markets and distribution of the organ. The collection markets are held every five days and there are those of Ouèdo, Adjarra and Ouando. From these lead on the second type of market that collects plant part from the first the wide spray of product over the country. The distribution markets are Agbokou, Kétoukpé, Porto- Novo region grand market, the Dantokpa market. These markets come alive almost every day. In this study the first group of market was investigated.

The market commercialization is constituted of collectors, retailers and detailing. The seeds of these species are purchased in bags of 50 kg between 10,000 and 15,000 FCFA in times of plenty are sold at prices ranging between 700 and 1000 FCFA so that in times of scarcity the seeds acquired more expensive (between 15,000 and 25,000 FCFA) sold between 800 and 1300 FCFA the pile of 40 seeds.

Approximately 40 seeds can weigh between 700 and 1200g. Adjarra and Ouando, seeds are bought cheaper (between 6000 and 8000 FCFA 50 kg bag in any period) and are sold on the market places between 600 and 1000 FCFA the pile of 40 seeds. Average masses seeds vary greatly between the different actors. Pickers are the actors who market larger quantities of seeds while retailers sell the seeds sometimes same quantities but more expensive.

The margin generated by the commercialization of these seeds is about 35.46 FCFA / kg for collectors and 47.35 FCFA / kg of fruit sold to retailers. It also varies from one locality to another. However, it remains the highest for the actors (collectors and retailers) of Ouedo (ie 59.61 CFA francs on average).

3.4. Threat of sustainability of species in these entrenched region

In the visited communities one can noticed that species are mainly found in gallery forest, in agro forest system and nearby house where they are protected. Though stem are found in forest they are all belonging to some persons. Actually, in these communities, the first that encounter the species use to protect it from their juvenile step to their maturity. Then each single stem encounter is private property. Thus, the private owner can give it to his out spring or cut for different purposes. Additionally the regeneration of species is almost absent. However only two communities are welcome the project of re-plantation part of this project.

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