



# TECHNICAL SHEET OF FRESH BARK OF THE “WHITE VARIETY” OF *BYTTNERIA CATALPIFOLIA*, A WILD PLANT CONSUMED IN THE WESTERN PART OF CÔTE D’IVOIRE

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## ABSTRACT

*Byttneria catalpifolia* is one of the most widely consumed wild species, especially those in the mountainous western part of Côte d’Ivoire. The aim of this study was to assess the nutritive potential of dried bark powder from the “white variety” of *Byttneria catalpifolia* in order to provide consumers with the best way of using the plant that would benefit them. Proximate analysis, minerals and amino acid contents were determined respectively in accordance with the standard methods, the HPLC and SEM. The bark powder presented good percentage of a crude fiber (54.50 % d.m.) and vitamin B9 (254.10 mg/100g dm). It is rich in minerals Ca (3856.22 mg/100 g dm); K (1251.05 mg/100 g dm) and Iodine (I) (129.62 mg/100 g dm). This white bark has a remarkable proline (11.51 mg/100 g dm) and tartaric acid (35.21 mg/100 g dm). Thus, the consumption of the bark powder would be more advantageous because it could contribute more to the nutritional requirements of consumers.

**Keywords:** *Byttneria catalpifolia*, bark, nutritive potential, wild food plant.

## INTRODUCTION

*Byttneria catalpifolia* is a shrub undergrowth forest whose fruit is thorny and contains numerous small black seeds<sup>1</sup>. It belongs to family Sterculiaceae that grows naturally in tropical forests<sup>2</sup>. This plant species is a vine, more or less climbing shrub and rarely herbaceous. It includes 7 African species: *Byttneria catalpifolia* Jacq subsp. *Africana*, *B. fruticosa*, *B. glabra*, *B. grossedenticulata*, *B. guineensis*, *B. ivorensis*, *B. dahomensis*<sup>3</sup>. The species *Byttneria catalpifolia* is composed of the “white and red variety”. These two varieties are distinguished by the coloration of the epidermis. Indeed, the “white variety” is characterized by the white color of the bark<sup>4</sup>. In Africa, thousands of wild plants are used daily by farming communities<sup>5</sup>. These plants contribute substantially to food by ensuring the survival and providing nutrients in the diet. *Byttneria catalpifolia* is part of the very popular eating wild species by populations, especially those in the mountainous western part of Côte d’Ivoire<sup>2</sup>. However, it is clear that knowledge of local foods and their composition are required to conduct actions for improving nutrition such as achieving balanced diets and nutrition education.

The objective of this study was to contribute to the promotion of edible wild plant from dried bark powder of the “white variety” of *Byttneria catalpifolia*.

## MATERIAL AND METHODS



**Figure 1: Organs of the white variety of *Byttneria catalpifolia* a) plant, leaves and fruits; (b) nuts; c) white bark<sup>2</sup>**

The stem samples (Figure 1c) were harvested from Man (latitude 7°24’45” North and longitude 7°33’13” West, Côte d’Ivoire), transported fresh to the laboratory and then identified by the National Floristic Center (University Felix Houphouët-Boigny, Abidjan-Côte d’Ivoire).

This plant species has several names according to some ethnic peoples<sup>2</sup> (Table 1).

**Table 1: Different names of the stem according to the African ethnic groups**

Ethnics	local names
Wè	Kplou-kplon
Yacouba	zanyili
Toura	zanyili
Ashanti	sukaruwa

The edible parts of *Byttneria catalpifolia* are the fruit and bark of the stem. The major nutrient constituents of the bark such as energy, fiber, calcium and magnesium and iodine in the bark of the "white variety" are reported in Table 2 (data per 100 g the edible portion).

The white bark of *Byttneria catalpifolia* is used in traditional pharmacopoeia in the treatment of inflammation in lactating women. It has antidote properties against pitting and venomous bites<sup>6</sup>. At harvest, the stems are mostly cut to the ground. The leaves are removed on the stems and these are tied in boots to be sold on the market. Operators systematically slaughter the vine. This type of crop causes the plant to be threatened with extinction. On the local markets, boots of stems are marketed in the cities of the west of Côte d'Ivoire (Man, Biankouma). All villages and settlements supply the markets<sup>7</sup>. The main target markets are Man, Biankouma, Mangouin, Gbonbélé and Blapleu (in western Côte d'Ivoire).

## RESULTS AND DISCUSSION

To make the sauces, the epidermis of the stem is scraped with a knife to remove it. The stems are then tapped to dilute the bark. The dilacerate bark is soaked in lukewarm water for 15 min, then pressed (kneaded) by hand until the mucilage is used to thicken the sauces<sup>6,7</sup>. The bark of *Byttneria catalpifolia* and the mucilage are used in sauce to add the sticky effect and the taste. These sauces are accompanied by Toh or foutou of cassava. The bark is dried in the sun and reduced to powder. The shelf life is approximately 9 months<sup>2</sup>.

**Table 2: Main contents of white bark per 100 g of dry matter**

Components	Values
Calories (Kcal)	124.50
Fibers (g)	54.50
Calcium (mg)	3856.22
Potassium (mg)	1251.05
Iodine (mg)	129.62
Vitamin B9 (mg)	254.10
Proline (mg)	11.51
Methionine (mg)	2.70
Tartaric acid (mg)	35.21
Citric acid (mg)	15.23

Operators systematically slaughter the vine. The trunks and all twigs and twigs are cut into boots that are sold in bulk and half bulk (Figure 2). Women are involved in the network. The women surveyed earned between 4500 CFA francs and 6000 francs per week, which corresponds to the sale of at least one bunch of stems per market day<sup>8,9</sup>.



**Figure 2<sup>9</sup>: Commercialization of the stem of *Byttneria catalpifolia* in different markets**

The price on the market varies according to the villages. However, the kilogram of stem of *Byttneria catalpifolia* is estimated at 500 FCFA according to the ethnobotanical studies<sup>9</sup>. The economic and nutritional values of the stems sold are shown in Table 3 above.

**Table 3: Economic and food value of stems sold**

Price of the tide	Mass(g)	Consumption
100 francs CFA	200 – 300	Sauce for 4 people
150 francs CFA	300 – 480	Sauce for 4 to 6 people
200 francs CFA	500 – 600	Sauce for 5 to 7 people
300 francs CFA	700 – 800	Sauce for 8 to 10 people
350 francs CFA	800 – 900	Sauce for 9 to 12 people
500 francs CFA	1000 – 1200	Sauce for at least 15 personnes

g = gramme

## CONCLUSION

This study has highlighted on the nutritive value from fresh bark of the "white variety" of *Byttneria catalpifolia*. From the above investigation, it can be concluded that the bark of this wild plant are characterized by high crude fiber, carbohydrates, proline, tartaric acid, and vitamin B9 contents. The stem bark is a good source of minerals and should be consider as I, Ca and K rich food. Thus, "white variety" of *Byttneria catalpifolia* consumed in Western part of Côte d'Ivoire may be used in many traditional as well as commercial products for added value in order to overcome the nutritional deficiency.

## REFERENCES

1. Cristóbal L., Sterculiaceae, In Stevens WD Ulloa C, Pool A & Montiel OM (ed). Flora de Nicaragua. Monogr. System

Botanic. Missouri Botanical Garden, Missouri, USA; 2001, p 1911-2666.

2. Bognon C., The plants in the life of Wè people. PhD Thesis, University of Paris (Pierre and Marie Curie) Specialization, Tropical Plant Biology; 1988, p 1-305
3. Rondón J. Clave illustrates the identification of the genus *Byttneria* L. (Sterculiaceae) in Venezuela Acta Botánica Venezuelica 2011; 34 (2): 417-433.
4. Hawthorne W. and Jongkind C. Woody plants of West African forests : a guide to the forest trees, shrubs and lianas from Senegal to Ghana. Kew publishing. Royal Botanic Gardens, Kew ; 2006, p 1- 1023.
5. Florence J. Flore de la Polynésie française 2; 2004 p 1-518.
6. Grivetti L. Frentzel C., Ginsberg K., Howell K. and Ogle B. Bush foods and edible weeds of agriculture : perspectives on dietary use of wild plants in Africa, their role in maintaining human nutritional Status and implications for

- agricultural development. In: Akhtar, R. (ed.): Health and disease in tropical Africa. Harwood, London; 1987, p 51-81.
7. Irvine F. Woody plants of Ghana with special reference to their uses. London: Oxford University Press; 1961, p1- 868.
  8. Ouattara N., Gag E, Stauffer F and Bakayoko A. Floristic and ethnobotanical diversity of edible plants in the Department of Bondoukou (North-East of Ivory Coast); 1997-5902, 2016; 98 : 9284-9300.
  9. Saidou C. Physico-chemical and functional properties of the hydrocolloid gums of the barks of *Triumfetta cordifolia* and

*Bridelia thermifolia*. Other. University of Grenoble; University of Ngaoundere; 2012, p 1-235.

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