

Research article

## Technical Sheet of *Irvingia gabonensis* Seeds Preparation in Ivory Coast

A D Sahoré<sup>1</sup> \*, L B Koffi<sup>2</sup>, A M Kouamé<sup>3</sup>

<sup>1,3</sup>Food sciences and Technology Department, University Nangui-Abrogoua, 02 BP 801 Abidjan 02, Ivory Coast

<sup>2</sup>National Agronomic Research Center (NARC) 01 BP1740, 08 Abidjan, Ivory Coast

Corresponding author: alexissahore@yahoo.fr

---

### Abstract

The Seed of *Irvingia gabonensis* is a traditional vegetable, non-timber forest product (NTFP) much consumed by some populations of the forest regions in Ivory Coast. It is rich in essential nutrients (protein, fat, etc.) and minerals (Ca, K) which are important nutritional supplements to the diet often starchy (Foutou banana, yam Foutou, Placali, Foutou cassava etc.) of these populations.

**Keywords:** *Irvingia gabonensis*, seed, nutrients, minerals, non-timber forest products.

---

### 1. Introduction



**Photo 1:** Tree of *Irvingia* (1)

The Irvingia or wild mango is a large tree up to 40 m high, which is mainly found in tropical forests of Central and Western Africa (2) (3)

The very fruitful tree can produce several hundred kilograms of fruit per year. The fruit is a drupe similar to a mango. The nucleus contains a single flattened seed. The fruits have a high variability depending on its origin: they weigh between 45 and 195 g contain a kernel of 0.5 to 7g and have very different taste qualities numerous work ethno botany characters (3) Emphasize the importance and value that indigenous populations of these regions give its fruit and especially its kernel which more than 60%, contains a dietary fat that may have industrial uses margarine in soap.

## 2. Material and methods

### 2.1. Vegetable material



**Photo 2:** *Irvingia gabonensis*: fruit and longitudinal section of stone and seeds (2)



**Photo 3:** The fruit is slotted and the *Irvingia* Seed is extracted manually using knives (4)

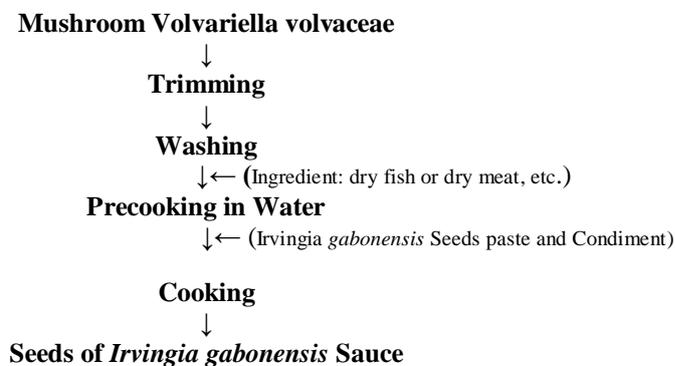
Dried *Irvingia gabonensis* seeds and some ingredients (dried fish or dried meat, mushroom, vegetable oil, and various condiments) were purchased on the market in Abidjan (Ivory Coast). All these crops will be used to prepare a traditional sauce made with *Irvingia* seeds. (Fig.1)

## 2.2. Preparation



**Figure 2:** Preparation of *Irvingia gabonensis* Seeds paste

In a cooking pot to fire I add oil, onion and a pinch of salt, then I add the dried animal protein (meat or fish), fresh pepper, water and vegetables *Volvariella volvaceae* previously soaked in water to delineate any sand. Allow the mixture to sauce when the sauce tends to his cooking, add the seasoning, the diced onion and then leave cooked sauce. Removed peppers and crush then reverse the batter into the sauce. Allow a few minutes of cooking. Cooked animal proteins are removed with a little sauce, and I added the paste *Irvingia gabonensis* (Fig.2) in the remaining hot sauce that will lead to making the sauce *Irvingia* was mixed with animal protein with the juice collected for firing a few minutes. It is preferable to eat this sauce with the traditional dishes: banana Foutou, yam Foutou, cassava Foutou, Placali or rice,



**Figure 1:** Preparation of *Irvingia gabonensis* Seeds Sauce

## 3. Results and Discussion

The traditional *Irvingia* Seed sauce (Photo 6) is usually prepared by the method described above (Figure 2). It has a thick and viscous greater or lesser degree depending on whether the amount of paste of *Irvingia* added to the broth mushroom *Volvariella Volvaceae* is higher or lower consistency.

The nutritional composition of this sauce analyzed (5); (5) in relation to the nutrient content of *Irvingia* seeds contain a significant protein content of about 5.83 - 7. 23 % dry mater and fat 63.61 to 65.84% d. m with a small amount of carbohydrates (23, 00 % d.m) (5); (6); (7). Energy intake of *Irvingia* Seeds in this preparation (Figure 1) would be in the order of 707.68 cal /100 g d.m (5).

This sauce is also rich in minerals. Including macro elements calcium (0.452% d.m) and Potassium: 0.678% d.m (5); ((6); With a low content of trace elements such as iron, copper and manganese in a ratio <1% The seed of *Irvingia* (Photo.3) is a traditional vegetable, non-timber forest products much consumed by some populations of

the forest regions in Ivory Coast. It has a remarkable nutritional composition providing vegetable protein intake (8) in the diet of people based starch (Foutou banana, Foutou yam, Placali, Foutou cassava, etc.).



**Photo 4 :** Irvingia Seed



**Photo 5 :** Irvingia Seed Paste



**Photo 6 :** Irvingia Seed Sauce

## Conclusion

The traditional *Irvingia gabonensis* Seed sauce is high in protein, fat and minerals (Ca, K). It provides its composition (nutrients and minerals) a remarkable nutritional value and consistent with the diet of many people. These Seeds are an important nutritional supplement (lipids, proteins, minerals).

## References

- [1] Kengni E, Kengue J, Ebenezer EBK Itabuna H. 2011. *Irvingia gabonensis*, *Irvingia Wombolu*, pommier sauvage. Conservation et utilisation durable des ressources génétiques Des espèces Ligneuses alimentaires prioritaires de l'Afrique Subsaharienne. Bioversity International (Rome, Italie)
- [2] Tchoundjeu, Z. and Atangana, A.R. 2007 *Irvingia gabonensis* (Aubry-Lecomte ex O'Rorke) Baill [Internet] Record from PROTA4U Van der Vossen, H.A.M. & Mkamilo, G.S (Editors) PROTA (Plant Resources of Tropical Africa / Resources Vegetates de L'Afrique tropicale) Wageningen Netherlands Kengni E
- [3] Silou TH, Biyoko S., Heron S, Tchapla A, Maloumbi M. G Caractéristiques physico- Chimiques et potentialités technologiques des amandes d'*Irvingia gabonensis* RISG n° 1/2004 Page 49-57.
- [4] Tsafack Ninglepong Grégoire Etude Socioéconomique du Système de commercialisation des amandes de mangues Sauvages (*irvingia* spp) dans l'arrondissement de Ngoulemakong (Sud Cameroun).2004.Université de Dschang
- [5] Sahoré, A., Nemlin J. and Tetchi A., "Study of Physicochemical Properties of Some Traditional Vegetables in Ivory Coast: Seeds of *Beilschmiedia mannii* (Lauraceae), Seeds of *Irvingia gabonensis* (Irvingiaceae) and *Volvariella volvaceae*," *Food and Nutrition Sciences*, Vol. 3 No. 1, 2012, pp. 14-17 Doi: 10.4236/fns.31003
- [6] Kouamé, N. M. T. and Gnahoua G. M., "Spontaneous Food Trees and Lianas of the Semi Deciduous Forest Zone Center- West of Ivory Coast): Species Encountered, Plant Parts Consumed and Food Values," *Proceedings of Inter- national Conference on Traditional Forest Knowledge*, Accra, 15-18 October 2008, pp. 1-34

[7] Womeni, H M., Ndjouenkeu, R., Kapseu, C., Parmentier, M. F. and J. Fanni Influence of Drying Techniques on the Kinetics of Seeds Water Loss and the Oil Quality of *Irvingia gabonensis*,” *Alimentary and Biological Processes*, Vol. 3, No. 1, 2006,pp. 46-61

[8] Rubaihayo, E. B., “Indigenous Vegetables of Uganda,” *African Crop Science Conference Proceedings*, Vol. 1, 1994, pp. 120- 124