Transformation of cassava into Bêdê

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A B S T R A C T

The objective of this work was to promote bêdê, which is a food made from the roots cassava in Côte d'Ivoire. To do this, the process of transformation of cassava into bêdê was monitored in order to establish a production diagram for bêdê. It emerged from this observation that the processing of cassava into bêdê covers a combination of steps including washing of the sweet variety roots, retting, pressing, sieving, drying and steaming. At the end of all these operations a slightly yellow product with a lactic taste called bêdê is obtained. The preparation of bêdê is very long and laborious.

Key words
Cassava roots, Sweet variety, Cassava processing, bêdê

Introduction

In Côte d'Ivoire, the processing of cassava results in several foods including gari, fufu, placali, attiééké and bêdê...etc. (N'Zué et al., 2013; Yéboué et al., 2017). Among these dishes, bêdê is the least known in Côte d'Ivoire. It is the final product of a long and tedious wet processing of the reddened roots which includes several operations such as peeling, cutting, washing, retting, pressing, sifting, drying and steaming.

The bêdê is a yellow semolina, with grains that are not very moist, compact and characterised by a sour taste. It is consumed exclusively within the family by the Agnis and Baoulé people living in Côte d'Ivoire in times of famine.

Today, bêdê is abandoned in favour of attiééké because of a laborious and too long transformation process. With the aim of enhancing the value of this endangered food, this work is part of a process of building knowledge of the different stages in the transformation of cassava into bêdê in order to facilitate its expansion on a national and international level.
Materials and Methods

The study material consists of sweet cassava root taken from a bêtê producer.

Monitoring the process of transformation cassava into bêtê

The monitoring of production involved a producer of bêtê. The purpose of the follow-up was to observe the processor throughout the preparation of the bêtê and to establish a production diagram for the bêtê. Thus, work methods, hygiene practices and processing procedures were carefully identified.

Results and Discussion

Bêtê is a food made from the roots of cassava rouie. In the past, bêtê was eaten during the lean season and nowadays only people of three ages know of its existence. Furthermore, bêtê is consumed by the Agni and Baoulé peoples, nowadays abandoned to the attéké profile because of its very long transformation process. Its preparation covers a combination of stages including washing the roots, retting, pressing, sieving, drying and steaming (Figure 2).

For the preparation of bêtê, roots of sweet varieties are used because they soften easily and give a pleasant taste to the food. Next, the roots are peeled and cut into pieces of about 5 cm with a knife to facilitate softening during retting and washed well to remove various impurities and reduce the microbial load (Figure 3). These peeling, cutting and washing operations are also observed during the production of several cassava-based foods such as attéké, gari and cassava flour by Sotomey et al., (2001); FAO, 2012; GERES, 2013.

The peeled, cut and washed cassava roots are then immersed in water in a hermetically sealed container (canary, pot...) for 8 days, this operation is called retting (Figure 4). According to Louembé et al., (2002), cassava-based foods obtained after retting, allows the detoxification and softening of the cassava roots as well as the improvement of the organoleptic characteristics, in particular, the taste, smell and texture of the food.

Fig.1 Fresh cassava roots of the sweet variety
**Fig.2** Diagram of bèdè production

1. Cassava roots
2. Peeling - cutting - washing
3. Retting (4 to 8 days)
4. Pressing
5. Seiving
6. Drying
7. Steam cooking (25 to 30 min)

**Fig.3** Peeling, cutting and washing of fresh cassava roots

Fresh cassava roots of the sweet variety

Peeling Cutting - Washing
**Fig.4** Retting of cassava cossettes after 4 and 8 days

![Retting images](image1)

Retting 4 days
Retting 8 days

**Fig.5** Pressing, Sieving and Drying of the cassava paste obtained after rewetting

![Pressing images](image2)

Pressing by Hand
Pressing by Machine

![Drying and Sieving images](image3)

Drying
Seiving
After retting, the pieces of soft or dough cassava roots are pressed by hand or put into jute bags and pressed with a manual screw press for 30 min for a bag containing 10 kg of cassava (Figure 5). This operation removes some of the water and starch from the cassava roots, as indicated by GERES, 2013 during gari production in Benin. The cake obtained is passed over a raffia fibre sieve with variable mesh size by a circular hand movement to make the compact mass of the pressed cassava crumbly and, above all, to remove the fibres and pulp fragments that are still hard (Figure 5). The resulting semolina is dried in the sun on vans, plastic sheets or metal trays for a period ranging from a few minutes to half an hour (Figure 5). During this operation, the producer stirs the powder by hand to homogenise the drying process. This operation is also observed by Sotomey et al., (2001) during attiéké production. According to this author, this operation allows the evaporation of water as well as the elimination of cyanogenetic carbohydrates.

To finish cooking is done with steam in a device consisting of a pot containing water supporting a perforated aluminum bowl. The kettle is well nested in the perforated bowl to avoid steam leaks. It is placed on a fireplace using wood or butane gas as fuel (Figure 6). The fresh pellets from the bédé are poured into the colander as soon as steam appears. During cooking, the semolina is occasionally turned over with a wooden or aluminium spatula. Cooking time is about 15 to 30 minutes, depending on the intensity of the fire and the amount of semolina to be cooked. Cooking promotes the removal of hydrocyanic acid, but the rate of hydrocyanic acid removal depends on the length of cooking time (Conn, 1979). Before cooking, some producers prefer to add a few ingredients such as chilli, oil, salt and even ripe banana flour to bring a particular taste to the final product because bédé is a dish that can be eaten without accompaniment. The bédé thus obtained comes in the form of a yellow semolina, with moist, compact grains and a lactic taste (Figure 6).

In conclusion this study aimed to establish a diagram for the production of bédé from Côte d'Ivoire in order to facilitate its expansion nationally and internationally. The preparation of bédé is almost manual, very long and laborious. It would be necessary to mechanize the processing stages.
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Conflict of interest

Authors have no conflict of interest regarding the publication of paper.

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