

Technical sheet of Process of traditional cassava inocula used for *attieke* productions in south of Côte d'Ivoire.

4 Abstract

5 Production of *attieke* in Cote d'Ivoire requires the use of inputs such as the cassava traditional
6 inocula. Our study is a technical sheet of a process of traditional cassava inocula used for
7 attieke production in south of côte d'Ivoire.  process of traditional cassava inocula for attieke
8 production was : Cassava roots, peeling, pulp washing and cutting, cooking, cooling,
9 packaging, fermentation. It contained aerobic mesophiles, total coliforms, fecal, *Bacillus*,
10 *Staphylococcus* and moulds.

11 **Keywords :** *attieke*, bacteria, cassava traditional inocula, process

13 **1.INTRODUCTION**

Attieke is the major fermented plant food in Côte d'Ivoire. It is a steamed granular cassava (*Manihot esculenta* Crantz) meal ready to eat, couscou-like product, with slightly sour taste and whitish colour (Djeni et al., 2011). It is consumed two to three times a day with meat, fish or vegetables. The popularity of *attieke* to urban dwellers in recent years has been associated with its cheapness, lower bulk (as compared to other cassava product) and its characteristic of ready to eat food. *Attieke* is one of the few products whose fermentation is not spontaneous but involves the use of an inoculum. This inoculum is obtained after 2-3 days of spontaneous fermentation of cassava roots, thus colonized by a wide variety of microorganism which constitutes the main source of microbial activities during the cassava dough fermentation (Djeni et al., 2008). Our study is a technical sheet of a process of traditional cassava inocula used for attieke production in south of côte d'Ivoire.

25 **2.MATERIAL AND METHODS**

27 **2-1-Material vegetable**



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29 **Photo 1: Cassava roots (photo A.K Kouame)**

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31 The used plant material consisted of 12 months-old freshly harvested cassava roots of the
32 bitter variety, IAC cultivar (Improved African Cassava).

33 **2.2 Traditional cassava inocula preparation**

34 Cassava roots are peeled, cut into pieces, washed three times with fresh water and then
35 ground, blanched for 10 to 20 minutes, drained, cooled in the open air for 15 minutes, then
36 wrapped in jute bags. The whole is put to ferment for 2 to 3 days in a hot place of the kitchen

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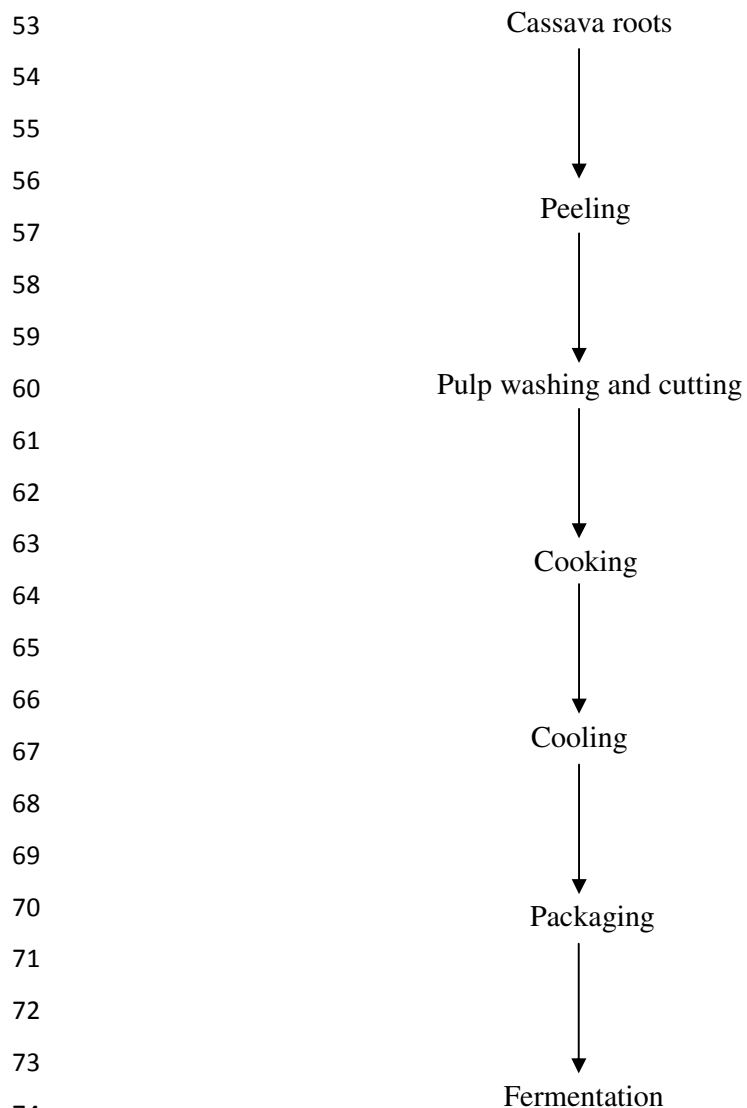


Figure 1 : Process of cassava traditional inocula production used for cassava dough fermentation during *attieke* production in southern parts of Côte d'Ivoire



Photo 2: Traditional cassava inocula (photo A.K Kouame)

3.Results and discussion

In Côte d'Ivoire; attiéké plays an important role in the population diet. It is part of the diet of many peoples. It is a typically Ivorian food, whose annual local consumption is estimated at over 450 000 tons (CNRA, 2003; Djeni et al., 2008). The production of attiéke necessarily requires the use of ingredient such as the cassava traditional inocula. The traditional cassava inocula used for cassava dough fermentation during *attiéke* production in southern parts of Côte d'Ivoire is usually prepared by method described above (figure 1). Cassava traditional inocula contain several microorganisms which plays an important role in the fermentation of cassava dough for *attiéke* production. The total titrable acidity and pH content of cassava traditional inocula were respectively 1.67% and 4.94. This pH was due to the fact that production of the traditional cassava ferment necessarily requires spontaneous fermentation. Traditional cassava inocula contained aerobic mesophiles, total coliforms, fecal, *Bacillus*, *Staphylococcus* and moulds. Mean loadings of aerobic mesophiles, total coliforms, faecal coliforms, *Bacilli*, *Staphylococcus* and mould were respectively $(2.2 \pm 0.7)10^9$ CFU / g; $(3.7 \pm 1.7)10^5$ CFU / g; $(1.7 \pm 0.7)10^3$ CFU / g; $(2.7 \pm 1.2)10^7$ CFU / g; $(2.2 \pm 1.5)10^5$ CFU / g and $(6.3 \pm 1.9)10^6$ CFU / g. The presence of such micro-organisms in the cassava traditional inocula could be due to a further contamination after steaming, by the production environment, the material of production, the product handling and during the packaging. These microorganisms constitute the bulk of the inoculum which would participate in the fermentation of the cassava pulp for the production of the *attiéke*. (Djeni et al., 2015).

4. Conclusion

Attieke is one of the few products whose fermentation is not spontaneous but involves the use of an inoculum. Traditional cassava inocula used for *attieke* productions in south of Côte d'Ivoire had an acidic pH. It contained a diversity of microorganisms which would participate in the fermentation of cassava pulp intended for the production of the *attieke* in Côte d'Ivoire.

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