



African Food Tradition rEvisited by Research
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* PU: Public; PP: Restricted to other programme participants (including the Commission Services); RE: Restricted to a group specified by the consortium (including the Commission Services); CO: Confidential, only for members of the consortium (including the Commission Services)

Introduction

For each ten products studied, a technical guideline has been created for African producers and industries. With the objective to make scientific information accessible to producers, each guideline presents a detailed process to local producers, giving them all the keys to understand the important parameters of each step of the process. It also demonstrates the advantages of the reengineered steps over the traditional steps of the process, opening possibilities for producing new products. The same structure has been used for the 10 guidelines:

- AFTER presentation and explanations about the guideline,
- Presentation of the product concerned (origin, category, sensorial and compositional qualities, comparison with a similar product to demonstrate advantages)
- Presentation of the process with a diagram
- Good Hygiene practices, as a basis adapted to the product: pictures, tools used, etc
- Description of the process, with details for each step, pictures to illustrate, parameters to be able to follow the process, characteristics of the product obtained at the end of each step, utility and reason of each step
- Results of consumer's test, to prove the potential of the product and it's acceptance on the market and to show new possibilities of innovative products.

The content has been written by each "Product Champion", in strong collaboration with CIRAD. The final layout has been proposed by CIRAD and used as a template by ACTIA to create the 10 guidelines expected in the most appropriate language (French or English – one language chosen by product).

The guideline for Kishk Sa'eedi has been edited in English and printed in the form of an A5 booklet (1000ex). Both versions (electronic and paper) are distributed to producers and to the concerned industries thanks to network of AAFEX. If you are interested in printing the guideline, you can download a high quality version for free on AFTER website (<http://www.after-fp7.eu/>): results - project deliverables - WP7 - Guideline for the industry.



Guideline

KISHK SA'EEDI

Fermented Whole Wheat
and buttermilk



This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 245-025.



What is AFTER project?

Launched in 2010 for 4 years, AFTER project has participated – from a sanitary and nutritional point of view - to the improvement of some African traditional products and processes in order to beneficiate to consumers and producers of Africa and Europe.

Financed by the European Union, the project is coordinated by Cirad. Partners from 7 African countries: Benin, Cameroon, Ghana, Egypt, Madagascar, Senegal and South Africa and from 4 European countries: France, Italy, Portugal and the United-Kingdom got together.



A guideline which addresses to local producers:

This guideline was elaborated in the frame of the European research project AFTER (African Food Tradition rEvisited by Research). It aims to help you optimize your production processes.

Based on the results of research, this guideline details the processing steps to obtain Kishk Sa'eedi (KS) and proposes several improvements in order to:

Standardize the process of the production to offer consumers a stable product.

Ensure the best sanitary and nutritional quality

Increase the shelf life of the final product

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Keywords: whole wheat, buttermilk, fermentation, sun drying, storage.

KS, whole wheat and buttermilk fermented balls

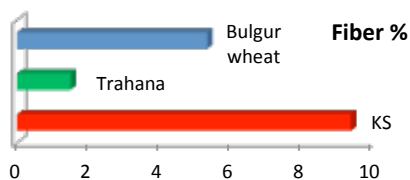
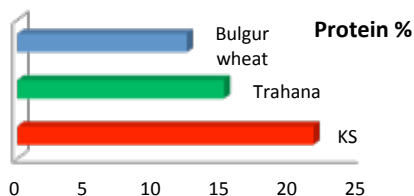
Kishk Sa'eedi (KS) is a traditional product made from buttermilk (Laban Zeer) and whole wheat grains. The buttermilk is fermented and then mixed with coarse whole wheat flour. The mixture (hama) is left to ferment again before being shaped into balls or nuggets and finally sun dried.



KS can be eaten at all stage of production: Laban Zeer can be used to prepare a refreshing drink, the Hama is a sour paste that can be made into a semisolid mash consumed as an accompaniment to vegetables or eggs.



In general, the final KS dried nuggets/balls are reconstituted by soaking in water and consumed as a hot gruel, often with the incorporation of vegetables, eggs, spices, garlic, or dates. They are also consumed as such as a school snack by children.



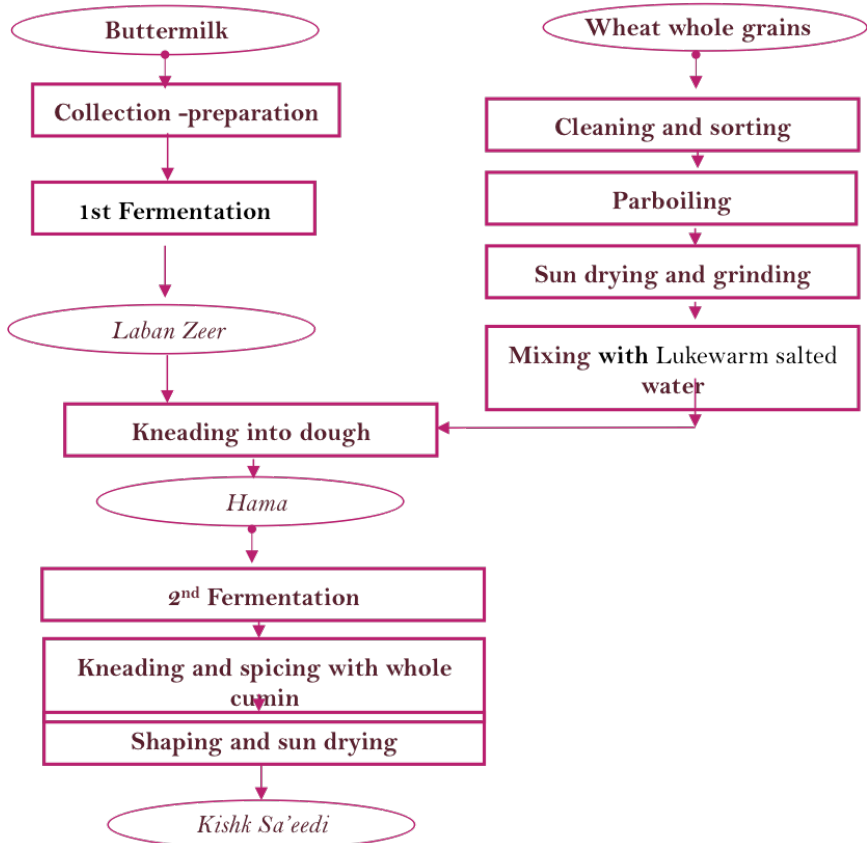
KS is a health promoting easily digestible product with high quality nutrients that are bioavailable. It is a low fat high fiber food product that is a source of balanced essential amino acids derived from combining the milk and wheat proteins. The fermentation process makes it a richer source for the B vitamins than for milk or wheat on their own. It also enhances the bioavailability of the calcium, iron, magnesium and zinc content.

*Source: Nutrition Facts and Food Composition Analysis. nutritionanalyser.com

**Source: Georgala A (2013) The Nutritional Value of Two Fermented Milk/Cereal Foods Named 'Greek Trahanas' and 'Turkish Tarhana': A Review. *Journal Nutrition Disorders and Therapy* S11: 002. doi:10.4172/2161-0509.S11-002

Trahana is traditional fermented milk-cereal products fermented by whole fresh ewes', goats' milk or a mixture of them.

The different steps of processing presented by this diagram are detailed later on, after having recalled the good hygiene practice.



Good Hygiene Practice...

Good hygienic conditions are necessary to produce a healthy product.

The place must be clean (walls, floor, ceiling).

The floor, even if it is cleaned and disinfected is an important source of contamination. One must work off the floor, on a table.

The material used must be clean and disinfected. The tools can be stored in boxes which will protect them from external contaminations and dust.



Disinfection protocol (source <http://www.eaudejavel.fr>)

Cleaning the production place : production area, furniture, cloakroom, toilets, floors, walls, doors. 300mL of bleach (8° - 2,6% of active chlorine) in 10L of water = 60 tops of bottle or 2 medium glasses un a bucket of water.

Leave for at least 5 minutes.

Cleaning the tools : buckets, ustensiles, pans... 450mL of bleach (8° - 2,6% of active chlorine) in 30L of water = 90 tops of bottle or 3 medium glasses un a big bucket of water.

Leave for at least 15 minutes.

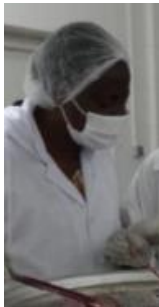
Clean with clear water: rinsing is mandatory for the surfaces which are directly in contact with food (ex: table, tools) and necessary for the surfac-es made of metal (corrosion risk). It is optional for the floors.



Staff members must not be a source of contamination. Each staff member must wear adapted and specific clothes for his activity.

The outfit requires, for a minimum, a coat, closed shoes and a plastic cap. It must be regularly washed and stored in a clean place.

Washing hands is indispensable. Wearing gloves does not replace washing hands. Un bon lavage des mains est essentiel.



Depending on the steps of production, it can be necessary to wear boots (in a humid area), gloves (when there is a direct contact with food) or even a mask (if there is a risk of contamination by air).



Processing step by step#1 Preparation of Laban Zeer

Collecting:

The butter milk is collected after churning unpasteurized cow or buffalo milk.

Storage:

The collected buttermilk is transferred into an earthenware unglazed jar called zeer.

The jar is filled progressively, making sure the buttermilk is stirred. A sprinkle of coarse table salt is added on the surface.

When the jar is full, it is left to ferment in a well aired dark place.

Fermentation:

The butter milk progressively seeps through the pores of the unglazed jar and turned into fermented sour thick paste referred to as Laban Zeer. This process require at least 40 days.

Processing, step by step#2 Preparation of whole wheat flour

Cleaning and washing

The whole wheat grains are cleaned and washed with tap water. This step frees the wheat from any unwanted materials.



Parboiling:

The clean mature grains are parboiled on an open fire in a metal barrel in plenty of water till they soften. The end point is just before rupture of the bran layer. This step last form 1-2 hr.

At the end of parboiling, the grains are soft, with a light yellow color and a transparent core.



Processing, step by step#2 Preparation of whole wheat flour

Sun drying:

The grains are left to dry in the sun on a mat for 3 to 5 days. When dry, the grains can be easily cracked by teeth.

Grinding:

The grains are coarsley grinded manually or with an appropriate electrical device. The resulting wheat meal is sieved using a metal mesh sieve or a ghorbal. The sieving process separates the finely ground wheat meal from the coarsely ground part. It is the latter that is preferably used in the production of KS.

Processing, step by step#3 Mixing with water

Lukewarm salted water is sprinkled to the dry coarse flour to produce a heavy paste called "hama". The recipient used is in a large shallow earthenware or aluminium pot (Magour). The mixture is covered well and left overnight in dry dark place without stirring.



Processing, step by step#4 Adding Laban Zeer

The "hama" is mixed with additional diluted Laban Zeer and kneaded energetically to obtain a dough. The hama obtained left to ferment during 2 to 5 hours. The resultant dough is sour, off-white, and cohesive, dough that contains bran particles. The proportion of to Laban Zeer to parboiled whole wheat grain is variable and ranged from 1:9 up to 3:7.

Processing, step by step#5 Kneading and Spicing

The resultant mass is thoroughly mixed incorporating whole cumin seeds and ground hot chilli pepper. The latter being optional.

Processing, step by step#6 Shaping and sun drying

The KS is shaped into small balls or nuggets and arranged on a reed mat to dry in the sun during 7 to 10 days. The balls/nuggets obtained are easily broken by teeth and the core is dried.

The dried product is stored mud-sealed unglazed earthenware jars called "Soma'a".

KS is considered shelf stable as it can be stored without depreciation or spoilage for up to the next kishk making season, that is, a shelf life of one year.



Re-engineered Kishk sa'eedi is packed in stand up or flat pouches containing 80 grams or 10-12 balls, depending on their size. This amount is estimated to be enough for 3-4 portions of the prepared KS, to satisfy the common demand of the urban European markets for individual size packages. Larger family size containers may be envisaged.

The package cover will provide a number of recipes selected to suit the global consumer. The use of an ancient Egyptian inspired design on the package will appeal to those consumers who are attracted to products and objects that have a tie to ancient Egypt.



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