

AFTER Africa

Seeking to improve knowledge about traditional African food production, a group of researchers explain the reasons behind their latest project and highlight some of the issues they expect to face



Interview contributors: **Cheikh Touré, Joseph D Hounhouigan, Dominique Pallet**

What conditions or factors have led to the establishment of the African Food Tradition Revisited by Research (AFTER) project?

JH: Despite their diversity, their natural character and their commercial potential when attached to African rural, urban and diaspora populations, traditional African foods face enormous problems in trying to exist in the modern world. AFTER has been established to find solutions to the constraints of African traditional food know-how to nourish urban and diaspora African communities and attract new consumers in Africa and Europe.

What issues does the project seek to address, and what are its core objectives?

DP: AFTER intends to fill a current research gap by generating and sharing knowledge on food technology and implementation in new markets for a range of traditional products both within Africa and also between Africa and the EU. In order to facilitate the exchange of information with a view to setting up a coherent project, this project will focus on Africa. The project will look at three main categories of traditional products and will directly contribute to improving the competitiveness of 10 traditional products. It will also facilitate their implementation and uptake by food companies and their marketing on the diverse types of markets for these products.

What are some of the key food safety issues that you seek to address over the course of your research?

JH: Food safety issues are very important in the global distribution of world food products in

Europe and also in Africa. The involvement of pathogenic and toxinogenic micro-organisms in traditional food products is well known by food scientists. While traditional lactic acid fermented cereal products are generally safe from pathogenic micro-organisms because of the acidic nature of the fermentation, it is very important to control the malting and fermentation processes to avoid development of toxinogenic micro-organisms like aflatoxin producing *Aspergillus* in malted and fermented cereal products such as *gôwé* from Benin.

To what extent does the project aim to improve the nutritional value of certain traditional African foodstuffs? Can you outline some of the project's research activities in this context?

DP: One of the objectives is to improve the technological processes to obtain a better and more reproducible quality and to develop new formulations of the traditional products to adapt to urban consumer demand. For instance, the control of fermentation parameters (such as pH, temperature, aW, O₂) and the use of various combined processes such as malting, precooking, cooking or drying could be an interesting approach to improve the nutritional and safety quality of cereal based products. Four traditional fermented cereal-based products will be studied in the project and the improvement of such processes should have an impact of great interest for European enterprises that want to propose new products to European consumers.

Sizeable African communities are found across Europe. Is there a high demand for imported African foodstuffs, and what role does the project play in this regard?

JH: African people are highly attached to their traditional food products. The demand of these products is so high that it is common to find suitcases full of traditional foods when African returned back from their home countries during holiday periods. This high demand has generated the ethnic markets in Europe and there is no doubt that this tendency will increase in the future.

AFTER involves 16 research institutions and stakeholders from countries across Africa and Europe. What are the merits of such broad-based collaboration?

DP: These countries are necessary for the implementation of project activities like the evaluation of existing knowledge and know-how on technologies and processes and a true evaluation of European and African consumer acceptance.

CT: AFTER involves African food industries through Association Afrique agro Export (AAFEX). This is important because, as they are involved from the beginning, they will play an important part in the dissemination process.

What ethical issues have arisen over the course of the project?

JH: The ethical issues are very important in such projects. African populations hold the indigenous knowledge which constitutes the basis for upgrading the new technologies to be developed. We must be prepared to address the question of how we face the possible conflict of interest between traditional producers and new producers if they have to produce for the same market.

Out of Africa

In a bid to improve quality and the potential widespread distribution of traditional African food products, the AFTER consortium have launched a project to encourage knowledge sharing between African and European partners

FOOD RESEARCH IN developing countries can be divided into four main areas: (1) processing of export crops for international market, (2) processing of imported products to feed local population, (3) creating tropical versions of imported foodstuff and (4) industrialising the production of traditional products. In recent years, the latter of these has seen the highest increase in activity and, in particular, has been implemented by private food processing companies from Latin America and Asia. It involves the mechanisation of processing and production in order to raise safety and quality standards.

This industrialisation approach, however, has only demonstrated limited success, due in part to limited resources in terms of knowledge and investment and also as the result of the nature of traditional processes not being understood or taken into account as they are often produced on a small scale and consumed by people of low incomes. The African Food Tradition Revisited by Research (AFTER) partnership have identified a need for the emergence of a new research priority dedicated to the identification and characterisation of food technology know-how and information sharing both within developing countries and with the EU. To bridge the gap the AFTER consortium have launched a project that aims to improve African traditional products and associated know-how, by sharing European and African knowledge and technology for the benefit of consumers and producers in Africa and Europe.

COVERING ALL FOOD GROUPS

The project activities will focus on 10 different food types that between them, cover the three major groups of produce: fermented cereal-based products; fermented salted fish and meat; and plant based extracts for functional food. These groups are representative of possible partnerships in research in order to effectively share traditional know-how and academic knowledge. Each will be studied in such a way as to fulfil four overall objectives:

- To reach comprehensive scientific knowledge of the existing know-how on technologies, processes and products
- To propose improved traditional processes through a re-engineering of the unit operations with the aim of improving the safety and nutritional quality while keeping or improving the organoleptic characteristics of traditional products
- To reach objective criteria of acceptability of the traditional products by the consumers and to ensure that the products can effectively access the EU markets in view of regulatory and ethical issues while also protecting the intellectual rights of the people in Africa



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JUJUBE, A FRUIT PROCESSED INTO A CAKE, WIDELY CONSUMED IN CAMEROON

- To present the results into ready to use information for food companies including SMEs via guidelines on quality management, food law and regulation and consumer protection and to transfer the results to the stakeholders from Africa and from the EU

IMPROVEMENT NOT ALTERATION

By generating and sharing knowledge on food technology, AFTER intends, for each product group, to improve, develop and create a product or a technology representing an interest shared between European and African food companies. The reason for this is made clear by Mr Dominique Pallet, coordinator of the project: "it contributes directly to improving the competitiveness of these products and it facilitates their implementation and uptake by food companies and their marketing on African and European markets".

Various strategies will be adopted to encourage such an integrated attitude. The first of these is an intention to make existing African products accessible to European markets which involves looking at improving the safety and nutritional qualities of products currently marketed in Africa. Project partner Cheikh M F Touré highlights the challenge that this presents as it is vital to "preserve the nutritional and organoleptic attributes of products while modernising the process for better compliance with food safety standards," particularly in light of the attachment of the African population to the organoleptic quality of the traditional products targeted. However, as fellow partner, Dr Joseph D Hounhouigan, suggests: "Optimisation of unit operations will probably help to improve the nutritional quality of some products without altering the product itself such as vitamins in bissap drinks. Also, increasing the milk part in Beninese akpan (maize yoghurt) could generate a new taste with better nutritional quality for the end-product".

IMPORT AND EXPORT

The project also hopes to apply African traditional processes to European raw materials



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AKPAN, A TRADITIONAL DRINK ORIGINATING FROM BENIN

INTELLIGENCE

AFTER

OBJECTIVES

The AFTER project aims to improve African traditional products and know-how associated with sharing knowledge and technology in Europe and Africa in order to benefit consumers and producers in Africa and Europe.

FUNDING

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PARTNERS

Centre de coopération internationale en recherche agronomique pour le développement (CIRAD ; coordinating institute) France • **Université Abomey Calavi** (UAC), Benin • **Council for Scientific and Industrial Research** (CSIR), South Africa • **Faculty of Agriculture, Alexandria University** (FAAU), Egypt • **Association de coordination technique pour l'industrie agro-alimentaire** (ACTIA), France • **Université Tananarive** (UT), Madagascar • **Ecole Supérieure Polytechnique de Dakar / Université Cheikh Anta Diop de Dakar** (UCAD), Senegal • **Université de Ngaoundéré** (ENSAI), Cameroon • **Escola Superior de Biotecnologia da Universidade Católica Portuguesa** (ESB), Portugal • **Natural Resources Institute** (NRI), UK • **Association AFrique agro EXport** (AAFEX), Senegal • **Spread European Safety Geie** (SPES), Italy • **Institute National de la Recherche Agronomique** (INRA), France • **Food Research Institute Council for Scientific and Industrial Research** (FRI), Ghana • **RACINES**, France • **Centre National de Recherche (NRC)**, Egypt

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DR DOMINIQUE PALLET gained his PhD in chemical engineering, he worked for 10 years on the design and implementation of agro-industrial unit to process tropical products. Since 1998 he has been a researcher at CIRAD. After a period of expatriation to Brazil to work on the South American fruit, he now leads the 'Methods of processing and preservation' team at the UMR Qualisud (<http://umr-qualisud.cirad.fr>).

to develop new alternatives of foodstuffs thus providing new outlets for European raw materials. Simultaneously, the aim will be to apply new technologies originating in Europe to African traditional production. The new products stemming from these processes will then be imported back to Europe. The final strategy will be to implement the sharing of the African traditional know-how with Europe to develop new technologies and/or new products in Africa and in Europe. These products will seek to meet the increased demand of European and African consumers for products that are easy to consume, with enhanced nutritional value and extended shelf life. In addition, they may offer opportunities for novel non-food industrial applications. As Dr Dominique Pallet states: "One goal is actually for the traditional African foods to meet the health criteria which allow their importation into Europe". These foods can be consumed by African populations living in Europe but not only by them, thus implying that such traditional African food produce will attempt to gain a European market as well.

SUPPORT AND STRATEGY

Financed by the European Commission (FP7) the project will be implemented by partners of seven African countries: Benin, Cameroon, Ghana, Egypt, Madagascar, Senegal and South Africa alongside four European countries: France, Italy, Portugal and the United Kingdom. AFTER began in September 2010 and is expected to continue for four years. The first year has focused on characterising the products studied to gain greater understanding of the criteria for quality products. For example, the first months have seen an investigation into the product

Optimisation of unit operations will help to improve the nutritional quality of some products without altering the product itself such as vitamins in bissap drinks

variability according to sociocultural groups, the sensorial quality criteria as perceived by the traditional processors and consumers, the corresponding instrumental quality and the variability of the know-how used for processing. The reason behind this is explained by Dr Pallet: "All these characteristics are necessary for the process of re-engineering and for consumer and marketplace acceptance".

In years two and three the consortium will work on processes that will be revisited by a re-engineering approach with African food processing companies testing outcomes of the research. The final year will be used for pilot scale demonstrations and the dissemination of results through workshops to industry stakeholders via the Trade Chamber, food regulators and consumers. Dr Hounhouigan believes that attracting the interest of European stakeholders for African traditional foodstuffs is an important opportunity "for African scientists to gain the interest of African stakeholders for the potential of their traditional products and the necessity to perform research to upgrade the technologies for developing African markets".



KONG, A TRADITIONAL SMOKED FISH POPULAR IN SENEGAL

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