

## T5O-1. Special lecture

### Required nutritional, organoleptic and sanitary characteristics of fermented and unfermented gruels used as complementary foods in developing countries

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From six months of age, in order to complement energy and nutrients intakes from breastmilk, children living in developing countries need transitional foods with specific characteristics on account of their proportionally high nutritional requirements and their low gastric capacity. Despite their unsafe environment and the unhygienic feeding practices they often receive, as well as the generally low nutritional knowledge, the low purchasing power and the limited available time of their caregivers, infants must have access to complementary foods which (i) are free of pathogens and contaminants, (ii) have high energy and nutrient density, well balanced nutritional composition, low antinutritional factor contents and appropriate organoleptic characteristics (*consistency, taste, odour, colour...*) and (iii) are economically accessible, culturally acceptable and easy to prepare.

The present contribution serves a triple purpose. First, to summarize the required nutritional (*i.e., maximum and minimum nutrient contents, maximum antinutritional factor contents*), organoleptic (*e.g., consistency, sweet taste*) and sanitary (*i.e., microbiological specifications; maximum concentrations of toxic substances*) characteristics of complementary foods taking into account the current scientific knowledge and the last international recommendations.

Second, to briefly review the main (bio)technological processes which can be used to confer these characteristics to complementary foods in developing countries, particularly in sub-Saharan Africa: formulation, particularly for defining the incorporation rate of mineral and vitamin premix; biological processes such as fermentation, germination or enzyme addition; mechanical treatments such as dehulling; and thermal processes such as roasting or extrusion cooking.

Third, to suggest some practical and inexpensive ways of control to verify that a complementary food produced at community or small scale industry levels actually presents these required characteristics. On account of their important and related effects on infant energy and nutrient intakes, a simple way to check if an infant flour or a fermented paste can be prepared into a gruel having both a sufficient energy density and an appropriate consistency is proposed.

It is concluded that providing infants with appropriate complementary foods is not only a global technological challenge but also needs to integrate environmental, cultural, social and economical constraints.

**Keywords:** complementary foods, safety, nutritional value, consistency, quality control.

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