ETHIOPIAN HEALTH AND NUTRITION RESEARCH INSTITUTE (EHNRI)

REPORT ON STUDY ON GERMINATED WEANING FOODS AND "POWER FLOUR"

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EXECUTIVE SUMMARY

1. High prevalence of malnutrition among pre-school children was recognised long ago as one of the most serious nutritional problems in Ethiopia as in many less developed countries. As early as 1959, following the 1957-58 drought, ICNND (1959) reported the generally deteriorating food and nutritional status of the population with more emphasis on preschool age children with evidence of apparent prevalence of protein malnutrition and kwashiorkor. Consequently, the need for nutrition surveys and the institutionalization of activities was felt by the concerned authorities and bilateral donors. Soon after the establishment of the CNU, laboratory-based trials on weaning food formulation started. The work was led by Swedish medical doctors and nutritionists. The objective was to develop low-cost nutritious food to meet the needs of children of weaning age (6 months -3 years) from the poorest families. Consequently, Faffa, a high protein weaning food was developed after extensive clinical and biochemical investigations. A pilot plant was erected with a production capacity of 600 tons a year and marketing of the product was started in 1968. The plant grew and reached industrial scale in 1976 at which period when it was transferred to the Ministry of Industry. However, due to the high population growth rate, cost of the product, and distribution problems, Faffa could not meet the high demand for such food. Therefore, the professionals of the institute have to look for the alternatives to alleviate nutritional problems associated with weaning practices.

2. In light of these developments, the first author of this report, through the former ENI, had applied to the Ethiopian Science and Technology Commission for the Second Cycle Government Research Funding to conduct in-house germinated weaning food trials with local cereals and legumes.

3. Optimal conditions for malting of cereals and legumes were
standardized and different trials were carried out on kilning (roasting) of cereals and legumes which were used in the formulation of weaning foods. In this study, two weaning food formulations have been developed based on the available raw materials and simple processing technologies.

4. The blends consist of wheat, maize and chickpea. The grains have been germinated for the formulation of malted weaning food to produce weaning foods of good nutritive value, low paste viscosity and high calorie density. The duration for germination of cereal grains were 48 hours while the legume grains were germinated for 24 hours. Hence, malting of the grains for 24-48 hours was found to be sufficient to reduce the paste viscosity to optimum consistency. Besides, using this duration for germination could minimize malting loss.

5. The two weaning food formulations consist of 70% wheat or maize and 30% chickpea. The nutritional quality of the weaning foods fall within the recommended levels for cereal based weaning food because of the addition of legume (chickpea) which contains high amount of protein when compared to cereals. Depending on the situation and the need, either the basic formulation could be taken as such or could be supplemented with milk powder, minerals and vitamins.

6. The shelf-life (or storage life) of the products at room temperature was found to be about six months as determined by the taste panel members. However, the total microbial counts of uncooked samples appeared to be higher than expected. Although, in all the samples, "no food-borne disease causing pathogenic or indicator organisms were isolated." However, it was observed from the results that high number of spoilage organisms were isolated especially from stored samples. These quality attributes and the properties of cooked samples need in-depth studies to come into some conclusion. These and other factors related to malted foods in general and germinated weaning foods in
particular deserve attention and further in-depth investigations. In this connection, it is worth to point out the importance of thorough cooking of the weaning foods properly just before feeding and any left-over should not be kept for the next feeding.