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FIM 091

MICROBIAL QUALITY AND NUTRITIONAL EVALUATION OF WEANING FOOD FORMULATED FROM FERMENTED MAIZE, SOY BEANS AND FISH MEAL USING TRADITIONAL METHOD

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ABSTRACT

Weaning foods are foods specially made for infants between 6 – 9 months of birth. The aim is for gradual replacement of breast feeding. Any item besides breast milk that is given to an infant in any manner represent a weaning food. The aim of the study was to formulate a nutrient dense weaning diet and to carryout microbial analysis and nutritional evaluation on the diet. The dried samples were milled separately and formulated as follows, Maize flour 60%, Soya beans flour 35% and Fish meal 5%. The diet was evaluated for proximate composition and the data obtained were compared with standard. The data obtained were Protein 17.5%, ash 2.4%, crude fibre 2.01%, fat 6.5%, moisture 3.7%, and carbohydrate 67.87%. Microbial count for the formulation was *Staphylococcus aureus* (1.5×10^{-3}), *Lactobacillus spp.* (2.0×10^{-4}), *Escherichia coli* (1.2×10^{-3}), yeast (3.2×10^{-3}). The formulation was evaluated by 20 nursing mothers using the 9 – point hedonic scale. Flavour has the highest score due to fishy odour in the diet while colour has the lowest score due to its bright and attractive colour. It is recommended that infants fed on this formulation should be breastfed for at least six months because it is intended to act as supplement and a transition meal from breast milk to semi-solid diet.

KEYWORDS: Weaning Food, Microbial Quality and Nutritional Evaluation.

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PRODUCTION OF AMYLASE AND PROTEASE FROM *Bacillus subtilis* AND *Pseudomonas aeruginosa* ISOLATED FROM SOIL

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ABSTRACT

The study focused on the production of amylase and protease enzyme using bacteria isolated from soil. Soil samples were collected from Federal University of Technology Minna, Bossocampus using sterile dry polyethylene bag and kept at room temperature until use. Bacteria were isolated from the soil sample using cultural and biochemical tests. The bacteria isolated were screened for their ability to produce amylase and protease. *Bacillus subtilis* and *Pseudomonas aeruginosa* were identified to have the highest potential to produce the enzymes. The rates of biodegradation were determined using spectrophotometry. *B. subtilis* and *P. aeruginosa* were able to produce amylase and protease respectively. The effect of temperature (28°C, 37°C and 45°C) and pH (5, 7, 9) on the production of the enzymes by the isolates were determined. The optimum temperature and pH for the production of amylase and protease were 28°C (1.988) and pH 5 (0.943) for *B. subtilis* while that of *P. aeruginosa* were 37°C (1.092) and pH 7 respectively (0.042). The results of this study showed that *Bacillus subtilis* and *Pseudomonas aeruginosa* isolated from soil sample were good producers of protease and amylase and may be used for the large scale production of the enzymes.

Keywords: Amylase, protease, *Bacillus subtilis*, *Pseudomonas aeruginosa*, pH, temperature