**A PRELIMINARY STUDY OF FONIO-MORINGA SEED MEAL-BASED COMPLEMENTARY FOODS IN ALBINO RATS**

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**ABSTRACT**

The varying inclusion levels of fonio-moringa seed meal (FMSM) in infant weaning foods with a view to producing functional foods for pre-school children were evaluated. Fonio-moringa seed meal (FMSM) made from the combination of 8 units of fonio with 2 units of dehulled moringa seed was chemically analyzed and thereafter used as components of five laboratory formulated foods (LFF) for infants at 0, 5, 10, 15 and 20% levels and compared with two commercial infant weaning foods coded CFT and CFC. The FMSM was analysed for its proximate compositions, minerals, amino acid profiles, gross energy, functional and pasting attributes. A total of seventy (70) weaning albino rats were alloted to seven groups of ten (10) rats each on the basis of initial weight in a completely randomized design. The rats were fed their respective foods *ad libitum* for 28 days. Growth indices were measured in four (4) days interval basis and at the end of the trial, all the rats were sacrificed for haematology and serum biochemistry, organ weight, pathological scoring and villi integrity evaluation. The proximate composition of FMSM of the total ash, crude protein, fat, cellulose and soluble carbohydrate were: 2.01g, 20.25g, 12.27g, 1.56g and 63.91g/100gDM while that of the LFF ranged: 6.11-6.76g CV%:0.09, 16.79-20.61g CV%:2.33, 17.00-17.97g CV%: 0.17, 0.96-1.71g CV%: 0.07 and 53.54-58.15g/100gDM CV%:2.42 respectively. The FMSM contained nutritionally needed amino acids and minerals. Also, the Bulk Density, Water Absorption Capacity, Oil Absorption Capacity, Solubility, Swelling power and Gross Energy contents of the LFF ranged:0.69-0.73g/ml CV%:2.54, 99.00-99.30% CV%:5.30, 79.90-83.90% CV%:2.34, 9.00-11.00% CV%:8.25, 130.5-145.5% CV%:4.31 and 17.15-18.38MJ/kg CV%:0.03 respectively. The pasting properties of the FMSM of the peak viscosity, trough viscosity, breakdown viscosity, final viscosity, setback viscosity, peak time and temperature were: 1506RVU, 1100RVU, 406RVU, 2469RVU, 1369RVU, 5.60min and 88.850C respectively and there were significant (P<0.05) differences in the laboratory formulated foods of the pasting properties except that of the peak time and temperature. Rats fed on LFF 2 (P<0.05) with 5% FMSM inclusion had the highest weight gain (62.62g/rat) and best food conversion ratio (4.81) amongst the laboratory formulated foods when compared with the commercial foods. All organs weights measured with the exception of liver, heart and kidney were significantly influenced (P<0.05) while only villus length of the duodenum of the rats were significant (P<0.05). Also, the haematological parameters were not significantly (P<0.05) influenced by the dietary treatments, however, the Alkaline aminotransferase and cholesterol level ranged: 15.65-32.25µ/dl and 75.75-94.55mg/100ml (P<0.05) respectively. It could therefore be concluded that the incorporation of 5% fonio-moringa seed meal in infant weaning foods would help in alleviating the problem of protein malnutrition among pre-school children in Nigeria.

Keywords: Fonio seed, Moringa seed, weaning foods