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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 analysed 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,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 randomised 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. 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 BD, WAC, OAC, Solubility, Swelling power and Gross Energy contents of the LFF ranged:0.69–0.73 g/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 17.15–18.38 MJ/kg CV%:0.03 respectively.Rats fed on LFF 2 ($p < 0.05$) with 5%FMSM inclusion had the highest weight gain (62.62 g/rat) and best food conversion ratio (4.81) amongst the laboratory formulated foods when compared with the commercial foods.It could therefore be concluded that the incorporation of 5%FMSM in infant weaning foods would help in alleviating the problem of protein malnutrition among pre-school children in Nigeria.

Keywords: BD(bulk density),WAC(water absorption capacity), fonio seed, *Moringa* seed, OAC(oil absorption capacity), weaning foods

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