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Substitution of soyabean meal with *Moringa stenopetala* leaf meal positively influenced feed consumption and egg production: A novel approach to enhance poultry products in the rural communities

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Abstract

Moringa stenopetala is endemic to Ethiopia where it is widely distributed in southern parts of the country. One of the limiting factor of poultry nutrition in the tropics is the availability and accessibility of protein supplements such as soybean meal which is considered as the main protein source in poultry nutrition. The objective of this study was thus to evaluate the efficiency of substituting soyabean meal (SBM) with graded levels of *Moringa stenopetala* leaf meal (MSL) on feed consumption and egg production performances of Lohmann-tradition chicken breeds. A diet was formulated to contain MSL at a rate of 0 (MSL0), 3 (MSL3), 8 (MSL8) and 13 % (MSL13) by replacing the soybean meal of the control diet. Diets were formulated to be isocaloric and isonitrogenous with similar energy density and protein level. Forty pre-laying pullets of Lohmann-tradition chicken breed were randomly distributed to each treatment diet replicated four times with ten hens per replicate. Data were collected on egg number, egg weight and feed intake between 20 and 28 weeks of hen's age on daily basis. The rate of hen housed egg production (HhEp), egg mass (EM) and feed conversion ratio (FCR) were computed. The substitution of SBM with MSL did not affect HhEp, egg weight, EM and FCR. The average daily feed intake per hen reared in MSL0, MSL3, MSL8 and MSL13 diets was 112, 109, 119 and 125 g, respectively, being higher ($p < 0.05$) for hens fed with the MSL13 diet than those of MSL0 and MSL3 diets. The respective individual HhEP for hens fed on MSL0, MSL3, MSL8 and MSL13 diets was 61.0, 58.5, 63.3 and 58.3 %. The mean egg weight of hens reared in MSL0, MSL3, MSL8 and MSL13 diets was 53.5, 53.3, 54.1 and 53.5 g, respectively. Hens fed with MSL0, MSL3, MSL8 and MSL13 diets produced 1.60, 1.53, 1.68 and 1.54 kg EM per hen, respectively. The FCR of hens fed on MSL0, MSL3, MSL8 and MSL13 diets was 3.39, 3.46, 3.40 and 3.94 kg feed/kg EM, respectively. It can be concluded that the MSL was more palatable and could effectively substitute upto 15 % of the costly SBM as protein source in the layer hens' diet under tropical production environments.

Keywords: Egg production, feed consumption, Lohmann-tradition chickens, *Moringa stenopetala*, soybean meal

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