

**Amino acids fortification of low-protein diet for broilers under tropical climate. 2.
Nonessential amino acids and increasing essential amino acids**

ABSTRACT

A three-week trial was carried out to evaluate the effect of nonessential amino acids (NEAA) supplementation to a low-crude protein (CP) diet with adequate essential amino acids (EAA) level on growth performance, blood metabolites, and relative weights of abdominal fat, breast yield, and internal organs in broiler chickens raised under tropical hot and humid environment. Five isocaloric (3000 metabolisable energy/kg) corn-soybean diets were administered (1 to 21 days) to 5 groups of broilers (60 birds/group) as follows: i) 22.2% CP (positive control; PC); ii) 16.2% CP+all EAA to meet or exceed the National Research Council (1994) recommendations (negative control; NC); iii) NC+further EAA to equal the levels in the PC diet; iv) NC+NEAA to equal the levels in the PC; v) NC+EAA and NEAA to equal the amino acids levels in the PC diet. The results showed that the fortification of EAA alone, only improved feed intake (FI), whereas, addition of NEAA or EAA+NEAA significantly enhanced body weight, daily weight gain, and FI and decreased the feed conversion ratio to the same levels as in PC. Serum uric acid was significantly reduced and serum triglyceride increased in NC group. Dietary treatments had no significant effect on relative weights of heart, liver, abdominal fat, breast meat yield, serum albumin, and serum total protein. In conclusion, these results suggest that NEAA fortification may improve the growth performance of broilers fed an excessive low-CP diet under tropical hot and humid condition.

Keyword: Protein; Amino acids; Broiler; Tropical climate