

Effect of phytic acid on mucin and endogenous amino acid losses from the gastrointestinal tract of chickens.

Adeola, O.; Asem, EK; Onyango, EM,

Abstract:

The influence of the form of phytic acid on the regulation of mucin and endogenous losses of amino acids, nitrogen and energy in chickens was investigated. Forty-eight 10-week-old male broilers were grouped by weight into eight blocks of six cages with one bird per cage. Birds received by intubation six dextrose-based combinations of phytic acid and phytase arranged in a 3 x 2 factorial consisting of phytic acid form (no phytic acid, 1.0 g free phytic acid or 1.3 g magnesium-potassium phytate) and phytase (0 or 1000 units). Each bird received the assigned combination added to 25 g dextrose at each of the two feedings on the first day of experimentation. All excreta were collected continuously for 54 h following feeding and frozen until analysed. Frozen excreta were thawed, pooled for each bird, lyophilised, ground, and analysed for DM, energy, nitrogen, amino acids, mucin, and sialic and uric acids. Chickens fed either magnesium-potassium phytate or free phytic acid showed increased ($P < 0.05$) loss of crude mucin and sialic acid. The amount of crude mucin lost was significantly greater ($P < 0.05$) with magnesium-potassium phytate than with free phytic acid treatment. Both phytic acid treatments also increased ($P < 0.05$) endogenous loss of threonine, proline and serine. In conclusion, the form of phytic acid fed to chickens affects the extent of mucin and endogenous amino acid losses from the gastrointestinal tract