

Efficacy of a Novel Feed Protease on a Variety of Protein Ingredients

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BACKGROUND

RONOZYME® ProAct is a novel feed enzyme targeting dietary protein. The protease enzyme catalyzes the hydrolysis of dietary proteins into peptides and amino acids, making these nutrients more readily available for uptake and further utilization in broilers.

RONOZYME® ProAct complements the animals' own digestive enzymes, such as pepsin and pancreatic proteases.

EXPERIMENTAL DESIGN

The efficacy of the protease was evaluated using an *in vitro* digestion model that simulates the gastro intestinal system of monogastric animals (Figure 1). The ability of the protease to increase protein solubilization and the proportion of free amino acids from broiler diets and protein rich feed ingredients were determined. Test samples were incubated without (controls) and with protease supplementation in a stomach step (pH 3) followed by addition of pancreatic enzymes in an intestinal step (pH 7). The controls were used to correct the results for the effect brought about by the endogenous digestive enzymes.

The feed protease was tested on two commercial broiler diets based on soybean meal, corn and meat and bone meal. Moreover, different feed ingredients (meat and bone meal, corn, grain sorghum, feather meal, full fat soybean meal and defatted soybean meals) with varying protein content were tested separately.

RESULTS

From all ingredients, the solubilization of crude protein (Nx6.25) was increased (range 1 to 15%) by the feed protease. Effects were highest for meat and bone meal, corn and grain sorghum (8, 10 and 15%, respectively). Furthermore, the proportion of free amino ends, as determined by the degree of protein hydrolysis, was increased (range 3 to 27%) for all ingredients compared to the controls (Figure 2).

CONCLUSIONS

The results demonstrate a strong ability of RONOZYME® ProAct to increase protein solubilization and degree of protein hydrolysis for a range of common feed ingredients when incubated in a digestion model. Accordingly, this protease has the potential to improve the utilization of protein rich feed ingredients in animal production and make diet formulation more flexible and cost effective.

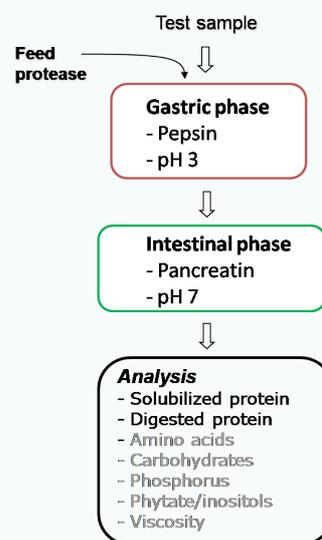


Figure 1. Schematic presentation of digestion model.

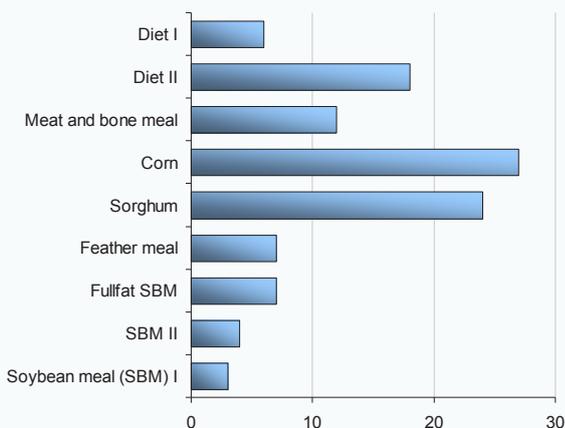


Figure 2. Additional protein digestibility (%) by the protease relative to the controls receiving pepsin and pancreatin only.