

Abstract 37:

Seaweed digestibility: *Ulva rigida* and *Solieria chordalis* co-products in broiler diets

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Seaweed could be used as feed ingredient to meet the growing demand for animal protein. This study aimed to determine nutrient digestibility of desalted seaweed co-products, and effects of enzymatic hydrolysis on nutrient digestibility. Seaweed co-products (species *Ulva rigida* and *Solieria chordalis*) were included in a 2 x 2 factorial design (species x enzymatic hydrolysis) with added control. Day old male Ross308 broilers were housed in 30 pens, 12 birds per pen, n=6 pens. Co-products were added to a control diet at 10% weight basis. Birds were weighed weekly and faeces was collected qualitatively at pen level at d 19-20-21. At d21, ileal digesta was collected, and histological parameters of the duodenum were analysed. Data were analysed using a generalized linear model, with contrast statements.

On FCR, a seaweed effect (*S. chordalis* > *U. rigida* diets; $P < 0.001$) and an enzyme effect (treated > untreated; $P = 0.004$) were observed. Seaweed co-products reduced nutrient digestibility of diets ($P < 0.001$). Digestibility was reduced in *S. chordalis* diets (Seaweed effect) and diets with enzymatically treated co-products (Enzyme effect). A reduced villus length ($P < 0.001$) and villus length: crypt depth ratio ($P = 0.006$) were observed in birds fed the *U. rigida* compared to *S. chordalis* diets.

The digestibility data indicate an interaction between seaweed co-products and basal diet, potentially related to altered viscosity of intestinal chyme. *U. rigida* is, based on this experiment, more suitable for inclusion in broiler diets compared to *S. chordalis*, whereas the digestibility needs to be increased further for optimal use of the dietary nutrients.