

In vivo digestibility of *Vigna unguiculata* grain meal in broilers

Investigating alternative feed of broiler chickens for small producers, the coefficient of apparent digestibility of *Vigna unguiculata* grain in raw and cooked form was determined. Therefore, a completely randomized design with three treatments and six repetitions was applied, substituting weight for weight and using male chickens (line COOB 500) in the finisher phase. They were confined in metabolic cages with 8 days acclimatization to the ambient and 5 days to the experimental diet previous to the measurement of digestibility. The following treatments were applied: T₀ control diet (balanced, non-commercial), T₁ 70% control diet control and 30% raw *V. unguiculata* grain, and T₂: 70% control diet and 30% cooked (5') *V. unguiculata* grain. The apparent fecal digestibility of raw and cooked grain was determined, as well as of single nutrients of the diet. The coefficients of apparent dry matter (DM) digestibility of raw and cooked grains of *V. unguiculata* were 66.95 and 72.78%, respectively. The apparent DM digestibility of the complete diets did not show significant differences between T₀ (78.3%) and T₂ (76.6%), nor between T₂ and T₁ (74.9%) (P>0.05). Single components of the diets did not differ statistically in digestibility (P>0.05): ether extract (87.3% for T₀ and 84,5% for T₁ and T₂), crude protein (T₀ 70,6%, T₂ 70%, and T₁ 65,2%). In gross energy (T₀ 84,2%, T₂ 84,9% and T₁ 80,5%), the digestibility of T₀ and T₂ was similar, and higher than T₁ (P<0.05). The three treatments differed significantly in the digestibility of the crude fiber (48,1%, 31,9% and 62% for T₀, T₁ and T₂ respectively). Digestibility of nitrogen-free extract (T₀ 87,3%, T₁ and T₂ 84,5%) was significantly different between T₀ and the other two treatments, while ash was similarly digested in T₁ (26.8%) and T₂ (34.5%) compared to T₀ (31.9%) (P>0.05). The similarity observed for the digestibility and consumption of *V. unguiculata* grain compared to control suggests it as an alternative to soybean meal to reduce production costs.

Keywords: *in vivo* digestibility, *Vigna unguiculata*, legume grain, broiler, grain meal