ADF and NDF apparent digestibility of cull chickpeas and peanut meal in growing pigs

SESSION 05
POSTER 12

J.M. Uriarte*, H.R. Güemez, J.A. Romo, R. Barajas, J.M. Romo, N. A. Lopez, and D. Jimenez
e-mail: jumanul@uas.edu.mx
FMVZ – Universidad Autonoma de Sinaloa (Mexico)

Introduction

Due to the increase in ingredient prices and diversification in by-products derived from the food industry that can be incorporated into animal feed, it is of interest to conduct comparative studies of the nutritional value of emerging ingredients in relation to soybean meal, which is the protein source with the most available information (Ilori *et al*., 1984); such as the peanut meal (Ranjhan *et al*., 1964; Shelton *et al*., 2001), and the cull chickpeas, available in Northwestern Mexico, which has been used in behavioral tests in different species (Obregón *et al*., 2004). However, there is no information in pigs of the ADF and NDF apparent digestibility of the cull chickpeas and peanut meal, which would allow a more efficient use of this by-product in the feeding of growing pigs. For this reason the objective of the present investigation is to determine the influence of different protein sources on apparent nutrient digestibility in growing pigs.

Material and Methods

The experiment was conducted in Unit Metabolic of FMVZ-UAS, localized in Culiacan, Sinaloa, Mexico. Placed at 60 m over mean sea level, with an annual mean temperature of 25.5°C, and 675 mm of water raining by year, and with a dry tropic weather. six crossbred pigs (BW = 39.14 ± 1.82) were used in a replicated Latin Square Design. Pigs were assigned to consume one of three diets: 1) Diet with 17.8 % CP and 3.27 Mcal ME/kg, containing sorghum 69.5 %, soybean meal 28 %, and premix 2.5 % (CONT); 2) Diet with 17.7 % CP and 3.28 Mcal ME/kg with sorghum 42.5 %, cull chickpeas 40%, soybean meal 12.0%, vegetable oil 3 %, and premix 2.5 % (CHP), and 3) Diet with 17.9 % CP and 3.26 Mcal ME/kg with sorghum 51.4 %, cull chickpeas 30%, peanut meal 14 %, vegetable oil 2%, and premix 2.5% (CHPN).

Pigs were individually placed in metabolic crates (0.6 × 1.2 m). The adaptation period was 6 days and sample collection period was 4 days. From each diet and period, one kg of diet was taken as a sample and the total fecal production was collected.

Results

Feed Intake (2.19, 2.24 and 2.26 kg/day) was not affected by treatments (P>0.05) for CONT, CHP and CHPN, respectively. Apparent digestibility of DM (82.04, 82.89 and 83.36 %) was affected among treatments (P <0.05), where apparent digestibility of ADF (P <0.05), was altered by treatments (17.67, 34.76, and 25.88, respectively). Apparent digestibility of organic matter was not altered (P=0.35) by CHP and CHPN inclusion. (84.89, 84.45 and 85.36%).

Table 1. Chemical composition of cull chickpeas (Humid basis)

Nutriment %	Middle	DE
Humid	7.38	0.21
Crude protein	20.13	0.50
Crude fiber	6.50	1.04
Crude fat	5.10	0.17
N Free extract	57.78	1.10
Ash	3.15	0.26
Organic matter	96.85	0.26

Value average of four observations.

Table 2. Influence of protein source on apparent digestibility of growing pigs

	Treatments			SEM	Pr =F
	CONT	CHP	CHPN		
Pigs, n	6	6	6		
BW initial, kg.	39.14	39.14	39.14		
	Apparent digestibility, %				
Dry matter	82.04[b]	82.89[a]	83.36[a]	0.330	0.03
Organic matter	84.89	84.45	85.36	0.424	0.35
ADF	17.67	34.76	25.88	0.944	0.03

Conclusion

It's concluded that cull chickpeas and cull chickpeas-peanut meal can be used in growing pig improving ADF digestibility.