

NUTRITIONAL EVALUATION OF CHICKPEA (*CICER ARIETINUM*) AND PIGEONPEA (*CAJANUS CAJAN*)

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Experiments were conducted with growing pigs and rats to determine the protein quality of two strains of chickpeas (C.P.56296b-low fibre content and C.P.61277-high fibre content), and pigeonpea in comparison to soyabean meal.

The diets were formulated on an equal crude protein (16.6%), lysine (0.8%) and digestible energy (14.7 MJ/kg) basis and were supplemented with minerals and vitamins. The diets were fed restrictively to growing pigs during the 20-48 kg growth phase. The pigs were fed frequently, at three hourly intervals, to enhance the utilization of the added free amino acids. With rats, diets were offered *ad libitum* for 14 d from an initial weight of approximately 50 g. Results were as follows.

Diet	1 Soyabean meal	2 Chickpea 56296-b	3 Chickpea 61277	4 Pigeonpea	SEM
<u>The performance of pigs</u>					
Liveweight gain (g/d)	632 ^{a†}	616 ^a	607 ^a	576 ^a	15.53
FCR	2.14 ^a	2.16 ^a	2.21 ^a	2.30 ^a	0.05
Carcass gain (g/d)	500 ^a	484 ^a	478 ^a	430 ^b	12.43
Carcass FCR	2.70 ^a	2.77 ^a	2.81 ^a	3.07 ^b	0.07
<u>The performance of rats</u>					
Liveweight gain (g)	58.9 ^a	56.5 ^a	54.3 ^{ab}	51.2 ^b	1.82
FCE	0.325 ^a	0.316 ^{ab}	0.307 ^b	0.302 ^b	0.006
Carcass gain (g)	48.4 ^a	43.5 ^b	42.6 ^b	36.1 ^c	1.56
Carcass FCE	0.262 ^a	0.243 ^b	0.240 ^b	0.212 ^c	0.005

[†] Values with different superscripts differ significantly ($P \leq 0.05$).

The results indicated that for pigs the protein quality of both strains of chickpeas were similar to soyabean meal, while the pigeonpea was inferior, on a carcass basis. With rats, the chickpeas were both inferior to soyabean meal, on a carcass basis, while pigeonpea was inferior to all the meals ($P \leq 0.05$).

The lower protein quality of pigeonpea may be due to the presence of anti-nutritional factors such as trypsin and chymotrypsin inhibitors (Honavar *et al.* 1962; Weder 1981), and or tannins (Jambunathan and Singh 1980). The different results between pigs and rats for chickpea suggests a species difference in tolerance to unidentified nutritional factors.

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