A STUDY ON THE AMINO ACID COMPOSITION OF AUSTRALIAN INGREDIENTS IN 1990

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Preliminary results are presented on the amino acid composition of Australian feedstuffs for 1990. Regression equations, based on crude protein (CP), were derived to predict amino acid content of similar ingredients.

Results refer to analyses on meat meal:n=15, %CP:mean-48.7 (range 44.2-54.2), peas:11,21.7(20.1-23.5); wheat: 12,11.2(9.0-14.4); barley:11,10.1(6.5-11.3); oats:12,7.9(6.5-9.8), sorghum:12,10.0(7.7-12.1). Grains and peas were of different varieties and locations. Method of amino acid determination was by ion-exchange chromatography (preoxidation with performic acid; hydrolysis 24 h, 6N HCl). Tryptophan was analysed after alkaline hydrolysis (LiOH) by HPLC/UV detection. Except for meat meal (DM=91%) all values are adjusted to 88% dry matter.

In Table 1 simple linear regressions are given to estimate amino acid contents from "% CP" as the only independent variable (Y - a+b*%CP, with Y - % amino acid; a=intercept; b=regression coefficient; r=coefficient of correlation).

Table 1 Parameters of regression equations (%Y - a + b * %CP)

	Yi	Met	Met+Cys	Lys	Thr	Trp
Meat meal	a	0.074	-1.012	0.409	-0.142	-0.112
(n=14)	b	0.012	0.046	0.042	0.036	0.008
	r	0.69	0.51	0.74	0.60	0.54
Peas	a	0.093	-	0.235	0.150	0.096
(n=11)	b	0.005	-	0.059	0.029	0.005
	r	0.68	-	0.91	0.92	0.56
Wheat	a	0.029	0.096	0.125	0.054	0.041
(n=12)	b	0.014	0.032	0.017	0.025	0.008
	r	0.98	0.98	0.97	0.99	0.72
Barley	a	0.032	0.125	0.090	0.044	0.010
(n=11)	b	0.014	0.028	0.028	0.030	0.011
	r	0.99	0.97	0.97	0.99	0.97
Oats	a	0.012	0.079	0.047	0.026	0.0003
(n=12)	b	0.017	0.041	0.036	0.032	0.011
	r	0.95	0.92	0.96	0.98	0.95
Sorghum	a	-0.007	0.051	0.129	0.044	0.012
(n=12)	b	0.018	0.030	0.009	0.029	0.010
	r	0.96	0.97	0.79	0.99	0.96

The high values for "r" indicate that the degree of fit, especially for all grains, is satisfactory. Analysing for CP and subsequent calculation of amino acid content using a regression equation, is a practical approach for evaluating Australian ingredients for feed formulation.

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