

Table 1. Amino acid composition of pulse proteins.

Adapted from Boye, J. et al. (2010). Pulse proteins: processing, characterization, functional properties and applications in food and feed. Food Research International, 414-431. <https://doi.org/10.1016/j.foodres.2009.09.003>

Amino acid	Pea <i>Pisum sativum</i>		Chickpea <i>Cicer arietinum</i>		Lentil <i>Lens culinaris</i>		Bean <i>Phaseolus lunatus</i>	
	Ref. A	Ref. B	Ref. C	Ref. D	Ref. E	Ref. F	Ref. G	Ref. H
	Essential AA							
Isoleucine	3.33	3.89	0.36	4.1	5.06	9.58	0.54	5.3
Leucine	6.58	7.84	0.48	7.0	8.09	15.86	0.72	9.0
Lysine	6.84	6.25	0.91	7.7	5.69	12.64	0.83	7.7
Methionine	1.03	1.60 ^d	0.12	1.6	1.18	1.63	0.23	1.3
Phenylalanine	4.19	5.17	0.42	5.9	5.55	10.64	0.69	6.0
Threonine	3.59	4.46	0.06	3.6	5.62	7.57	0.26	4.9
Tryptophan	0.94	0.61		1.1	ND	ND		
Valine	3.89	5.11	0.38	3.6	7.24	11.64	0.65	5.9
Arginine ^a	6.84	7.93	0.48	10.3	9.10	14.04	0.42	6.9
Histidine ^a	2.52	2.33	0.24	3.4	6.84	3.95	0.30	3.2
Non-essential AA								
Alanine	4.27	4.83	0.26	4.4	21.32	39.81	0.30	4.7
Aspartic acid	10.68	11.16 ^b	0.58	11.4	11.17 ^b	26.10 ^b	1.36	12.0
Cystine	1.55	0.35		1.3	0.44	0.39		1.1
Glutamic acid	16.92	18.46 ^c	1.67	17.3	24.22 ^c	42.27 ^c	1.88	15.1
Glycine	4.32	4.82	0.26	4.1	10.22	12.66	0.43	4.2
Proline	3.76	4.64	0.24	4.6	8.88	11.36	0.38	4.7
Serine	4.79	5.71	0.12	4.9	11.20	15.60	0.61	7.2
Tyrosine	3.16	3.34	0.19	3.7	5.05	7.53	0.45	3.4

^a Conditionally essential.

^b Aspartic acid + asparagine.

^c Glutamic acid + glutamine.

^d Methionine + cysteine.

A. Unit: g AA per 16 g N (Leterme, Monmart, & Baudart, 1990).

B. Unit: g/100 g protein (Khattab, Arntfield, & Nyachoti, 2009).

C. Unit: g/100 g of wet sample (Candela, Astiasaran, & Bello, 1997).

D. Unit: g/16 g N (Alajaji & El-Adawy, 2006).

E. Unit: mg/g dry weight basis (Rozan, Yu-Haey, & Lambein, 2001).

F. Unit: g/16 g N on dry weight basis (Evans & Boulter, 1974).

G. Unit: percentage of total weight on dry basis (Kovalenko, Rippke, & Hurbugh, 2006).

H. Unit: percentage on dry weight basis (Karr-Lilienthal, Grieshop, Spears, & Fahey, 2005).