AMINO ACIDS COMPOSITION IN SELECTED NUTS

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In recent years, we are witnessed that a nuts very popular food and is recommended as part of a diet because it contains numerous bioactive compounds. Nuts contain a high percentage of protein, ie amino acids that are known to be necessary for important processes such as tissue growth, energy production, immune function and nutrient absorption.

In order to check the amount of individual amino acids found in the favorite samples of nuts of our citizens, we determined total protein and amino acid profile (17 amino acids) in nine samples of nuts (peanuts, almonds, hazelnuts, walnuts, brazil nuts, cashews, pecans, pistachios and pine nuts). Total amino acid composition was determined by Ion Chromatograph with electrochemical detector, manufactured by Thermo, model ICS-5000, with silver reference electrode (Ag / AgCl) and gold (Au) working electrode and chromatographic column AminoPac PA10 and pre-column AminoPac PA10 guard.

Table 1. Essential fatty acid composition of selected nut seeds in g/100 g.

	Peanut	Almond	Hazelnut	Walnut	Brazil nut	Cashew	Pecan	Pine nut	Pistachio
Total proteins	29.2	24.4	16.9	18.8	16.3	21.5	11.7	17.5	23
Essential amino acids									
Lysine	1.08	0.76	0.53	0.62	0.41	1.10	0.35	0.69	1.13
Threonine	0.87	0.55	0.51	0.62	0.53	0.74	0.27	0.56	0.86
Valine	1.07	0.87	0.73	0.74	0.47	1.11	0.36	0.64	1.00
Isoleucine	1.25	0.91	0.62	0.68	0.91	1.32	0.54	0.65	1.48
Leucine	1.97	1.38	1.11	1.19	1.14	1.45	0.66	1.11	1.76
Methionine	0.40	0.14	0.16	0.20	0.69	0.27	0.14	0.30	0.45
Histidine	0.71	0.58	0.50	0.56	0.37	0.60	0.33	0.44	0.50
Phenylalanine	1.36	1.18	0.74	0.85	0.46	0.97	0.44	0.56	0.92
Non essential amino acids									
Cystine	0.45	0.29	0.29	0.29	0.29	0.38	0.13	0.27	0.26
Tyrosine	0.70	0.44	0.35	0.45	0.31	0.39	0.28	0.41	0.34
Alanine	1.29	1.05	0.78	0.83	0.95	0.90	0.41	0.94	1.31
Aspartic acid	3.34	2.59	1.59	1.73	1.65	1.79	1.52	1.64	2.01
Glutamic acid	5.48	6.41	3.33	3.33	3.40	4.35	3.05	3.65	4.65
Glycine	1.91	1.30	0.72	0.89	0.88	0.88	0.42	0.73	1.22
Proline	1.84	0.81	0.6	0.71	0.48	0.77	0.34	0.69	1.06
Serine	1.68	0.80	0.71	0.98	0.49	1.03	0.41	0.77	1.19
Arginine	3.08	3.41	2.68	2.73	2.08	2.42	1.37	2.18	2.00

Analyzed nuts samples contained 11.7-29.2 g/100g total proteins. Pecans contained the least protein, while peanuts were the richest in total protein. Among the amino acids, glutamic acid, aspartic acid and arginine, contents were generally high, whereas methionine, cysteine, histidine and tyrosine contents were low. Peanuts were the most important source for essential amino acids (lysine 1.08 g/100g; histidine 0.71 g/100g; threonine 0.87 g/100g; leucine 1.97 g/100g; isoleucine 1.25 g/100g; valine 1.07 g/100g; phenylalanine 1,38 g/100g; and methionine 0.4 g/100g). Cashews were the biggest source for essential amino acids, 37% (essential/total amino acids), while the smallest source were almonds, 27%. Almonds were the biggest source of non essential amino acids, 73%.

The obtained results indicate that the nut is incomplete in the content of amino acids. Knowledge of the amino acid composition of nuts is essential for combination with other food groups when formulating a balanced diet.