Composition of flax and chia seeds (per 100 gms edible portion)

Scientific Names: ***Linum usitatissimum, Salvia hispanica***

Nutrient	Units	flaxseed	chia
Proximates			
Water	g	8.75	4.00
Energy	kcal	492	330
Energy	kj	2059	1381
Protein	g	19.50	17.1
Total lipid (fat)	g	34.00	32.8
Carbohydrate, by difference	g	34.25	41.8
Fiber, total dietary	g	27.9	22.1
Ash	g	3.50	5.2
Minerals			
Calcium, Ca	mg	199	870
Iron, Fe	mg	6.22	
Magnesium, Mg	mg	362	466
Phosphorus, P	mg	498	922
Potassium, K	mg	681	890
Sodium, Na	mg	34	
Zinc, Zn	mg	4.17	7.4
Copper, Cu	mg	1.041	2.45
Manganese, Mn	mg	3.281	5.85
Selenium, Se	mcg	5.5	
Vitamins			
Vitamin C, total ascorbic acid	mg	1.3	
Thiamin	mg	0.170	
Riboflavin	mg	0.160	
Niacin	mg	1.400	
Pantothenic acid	mg	1.530	
Vitamin B-6	mg	0.927	
Folate, total	mcg	278	
Folic acid	mcg	0	

Folate, food	mcg	278	
Folate, DFE	mcg_DFE	278	
Vitamin B-12	mcg	0.00	
Vitamin A, IU	IU	0	
Retinol	mcg	0	
Vitamin A, RAE	mcg_RAE	0	
Vitamin E	mg_ATE	5.000	
Lipids			
Fatty acids, total saturated	g	3.196	3.08
4:0	g	0.000	
6:0	g	0.000	
8:0	g	0.000	
10:0	g	0.000	
12:0	g	0.000	
14:0	g	0.000	0
16:0	g	1.802	2.13
18:0	g	1.394	0.95
Fatty acids, total monounsaturated	g	6.868	2.42
16:1 undifferentiated	g	0.000	0.03
18:1 undifferentiated	g	6.868	2.36
20:1	g	0.000	0.03
22:1 undifferentiated	g	0.000	
Fatty acids, total polyunsaturated	g	22.440	27.1
18:2 undifferentiated	g	4.318	6.66
18:3 undifferentiated	g	18.122	20.34
18:4	g	0.000	
20:4 undifferentiated	g	0.000	0.10
20:5 n-3	g	0.000	
22:5 n-3	g	0.000	
22:6 n-3	g	0.000	
Cholesterol	mg	0	0
Other			
Caffeine	mg	0	
Theobromine	mg	0	
Antioxidants			

Nonhydrolized			
Caffeic acid	mol		0.66 x 10 -3
Chlorogenic acid	mol		0.71 x 10 -3
Hydrolized			
Myricetin	mol		0.31 x 10 -3
Quercetin	mol		0.02 x 10 -3
Kaempferol	mol		0.11 x 10 -3
Caffeic acid	mol		1.35 x 10 -3
Amino Acids			
Alanine	gm/100gm*	4.4	4.4
Arginine	gm/100gm*	9.2	9.9
Aspartic acid	gm/100gm*	9.3	7.6
Cystine	gm/100gm*	1.1	1.5
Glutamic acid	gm/100gm*	19.6	15.0
Glycine	gm/100gm*	5.8	4.2
Histidine	gm/100gm*	2.2	2.6
Isoleucine	gm/100gm*	4.0	3.2
Leucine	gm/100gm*	5.8	5.9
Lysine	gm/100gm*	3.9	4,.4
Methionine	gm/100gm*	1.5	0.4
Phenylalanine	gm/100gm*	4.6	4.8
Proline	gm/100gm*	3.5	4.4
Serine	gm/100gm*	4.5	4.4
Threonine	gm/100gm*	3.6	3.4
Tryptophan	gm/100gm*	1.8	
Tyrosine	gm/100gm*	2.3	2.8
Valine	gm/100gm*	4.6	5.2

* of protein

Data Sources:

Flaxseed:
http://www.nal.usda.gov/fnic/foodcomp
Note: per USDA Nutrient Database, up to 12 percent flax seed can safely be used as an ingredient in food
The Flax Council of Canada. 2002. The nutritional analysis of flaxseed, from: www.flaxcouncil.ca

Chia seed:

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Taga, M.S., E.E. Miller, and D.E. Pratt. 1984. Chia seeds as a source of natrual lipid antioxidants. J. Am. Oil Chem. Soc. 61:928-931.

Ting, I.P., J.H. Brown, H.H. Naqvi, J. Kumamoto, and M. Matsumura. 1990. Chia: a potential oil crop for arid zones. Pages 197-200 in New Industrial Crops and Products. H.H. Naqvi, A. Estilai, and I.P. Ting ed. Proceedings of the 1st International Conference on New Industrial Crops and Products, Riverside, CA. Office of Arid Lands Studies, College of Ag, The University of Arizona.

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