

The Lupin Co – Dietary Fibre – Technical outline

Up until the latter 1970s, dietary fibres were classified as carbohydrate only because of the methods of analysis used, but since then the distinction has been made and the importance of Dietary Fibre appreciated.

The definition The Lupin Co uses for Dietary Fibre and Digestible Carbohydrates are those contained in the regulations of Food Standards Australia and New Zealand. They are also the definitions adopted by American Association of Cereal Chemists in 2001.

Dietary Fibre means that fraction of the edible parts of plants that are resistant to the digestion and absorption in the small intestine, usually with complete or partial fermentation in the large intestine. Dietary Fibre includes polysaccharides, oligosaccharides and lignin and promote beneficial physiological effects including laxation, and/or blood cholesterol attenuation, and/or blood glucose attenuation.

Digestible Carbohydrates are the simple mono and disaccharides (sugars) and oligosaccharides (starches) that are broken down by small intestine enzymes for absorption.

The fact that Lupin contains such a high level of Dietary Fibre and low Digestible Carbohydrate is what makes it so unique in comparison with other legumes and pulses and makes it unique in its effect on cholesterol and blood glucose attenuation.

Extracted from The Office Of Gene Technology, The Biology of Lupin, April 2013 :-

“...Lupin is typically low in Starch and most species contain less than 1.5% in the seeds. Therefore, the non-starch polysaccharides (NSP) constitute the major portion of the carbohydrate fraction of all lupin species, typically being about 40% (Glencross 2001).

Lupin seed hull (outer shell) and cotyledon contain different types of carbohydrates. The hull is predominantly composed of structural NSP : cellulose, hemi-cellulose and pectins. In contrast, the main NSP in the cotyledons are the non-structural polysaccharides of the cell walls, with the main constituents sugar being galactose, arabinose and uronic acids (Pettersen 1998)...”

The table overleaf is published by Food Standards Australia May 2015 :-

Table 1: Nutrient composition of whole lupin, split lupin and flaked lupin (per 100g)

Analyte Description	Units	Sample 1 Whole Lupin	Sample 2 Split Lupin	Sample 3 Flaked Lupin
Energy	kJ/100g	1230	1380	1350
Carbohydrate	g/100g	5.1	7.2	6.4
Sugars	g/100g	2.3	2.8	3.6
Total Dietary Fibre	g/100g	43.6	29.9	29.1
Inulin	g/100g	3.6	4.8	4.7
Total Dietary Fibre + Inulin	g/100g	46.5	33.7	32.9
Insoluble Dietary Fibre	g/100g	40.1	27.8	26.9
Soluble Dietary Fibre (by difference)	g/100g	6.4	5.9	6
Moisture	g/100g	8	7.2	9.7
Ash	g/100g	2.6	2.9	2.8
Protein (N x 6.25)	g/100g	31.3	41.1	40.5
Fat, total	g/100g	6.5	7.9	7.7
-Saturated	g/100g	1.3	1.5	1.6
-Trans	g/100g	<0.1	<0.1	<0.1
-Poly-unsaturated	g/100g	3	3.8	3.5
-Mono-unsaturated	g/100g	2.2	2.6	2.6
-Omega 3	g/100g	0.4	0.5	0.4
-Omega 6	g/100g	2.7	3.3	3.1
-Omega 9	g/100g	2.1	2.5	2.6
Vitamin A (Retinol)	µg/100g	<3	<3	<3
Vitamin B1 (Thiamine)	mg/100g	0.56	0.67	0.64
Vitamin B2 (Riboflavin)	mg/100g	0.02	0.02	0.02
Vitamin B3 (Niacin)	mg/100g	2.2	1.9	2.2
Vitamin B6 (Pyridoxine)	mg/100g	0.1	0.1	0.1
Vitamin E (Alpha Tocopherol)	mg/100g	0.3	0.5	0.3
Calcium	mg/100g	211	84	81
Iron	mg/100g	3.9	4.3	4
Potassium	mg/100g	570	730	715
Magnesium	mg/100g	171	189	188
Sodium	mg/100g	50	50	50
Phosphorus	mg/100g	302	410	404
Zinc	mg/100g	3.4	3.6	3.5

Please note that some values provided above may vary slightly in the NUTTAB publication.

Uses of the data by FSANZ

The results of this analysis will be incorporated into future releases of FSANZ's reference database NUTTAB and the Nutrition Panel Calculator.

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