

Australian Sweet Lupin flour & Skinnybik lupin cookies

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What is Lupin? Lupin is an ancient legume consumed throughout the Mediterranean region and Andean mountains for thousands of years. However, the ancient cultivar (*Lupinus albus*) contains bitter alkaloids which must be removed by soaking in brine followed by boiling. They are usually consumed cold as a delicious whole bean snack, forming an important part of the Mediterranean diet.



What is Australian Sweet Lupin? Almost 80% of the world's lupin crop is farmed in Western Australia! Over the last 80 years lupin has been subjected to scientific breeding in Australia resulting in a cultivar (*Lupinus angustifolius*) which has negligible amounts of bitter alkaloids. This sweeter neutral tasting bean no longer needs soaking in brine or cooking and can now be eaten uncooked! It is also gluten free and non GM. Sweet lupin is only available as flour, milled by Irwin Valley in Western Australia.

How does Sweet Lupin compare nutritionally to other legumes?

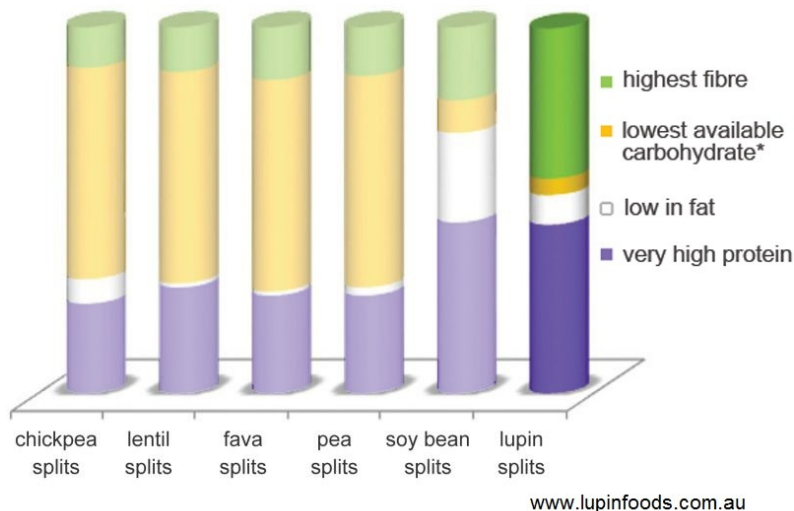
Lupins are the world's richest natural source of combined plant protein and fibre.

Sweet lupin is therefore the "king" of legumes because it has:

- a whopping 40% protein - double that of other legumes (except soy which is also 40% protein)
- all the essential amino acids (like soy) but is especially high in arginine that has been shown to lower blood pressure – other legumes lack some amino acids.
- a whopping 30% fibre - double to triple that of other legumes
- minimal starch so has a very low GI - other legumes are higher in starch with a low-moderate GI
- good fats, including omega 3 fats, also found in soy but not in other legumes
- bioavailable (well absorbed) levels of iron, magnesium, potassium, calcium compared to others
- beneficial antioxidants such as carotenoids like beta carotene and zeaxanthin (giving the flour its yellow colour) and polyphenols (catechins, rutin).
- high levels of phytosterols (higher than chickpeas) that can lower cholesterol
- negligible amounts of phytoestrogens (high in soy)
- negligible amounts of anti-nutritional trypsin inhibitors known to interfere with protein digestion often found in other legumes
- negligible amounts of anti-nutritional lectins and saponins (stomach/gut irritants interfering with absorption of nutrients) which are found in other legumes, especially soy (even after cooking)
- negligible amounts of anti-nutritional phytates (high in other legumes) which can bind calcium and zinc rendering them nutritionally unavailable
- nil alkaloids & anti-nutritional factors so the flour can be used un-cooked in smoothies, yoghurt etc

NUTRITION PROFILES

Lupins compared to other Legumes



Have there been any studies on Australian Sweet lupin flour?

Preliminary studies on lupin enriched foods (containing at least 20% lupin flour) have shown that they have the potential to

- *suppress appetite* (study subjects reported a significant decrease in hunger between meals)
- *improve blood glucose metabolism* by reducing blood glucose and insulin response
- *improve blood cholesterol*
- *lower blood pressure* (possibly due to the high amino acid arginine content)
- *improve bowel health* due to its prebiotic oligosaccharides (8%) that can promote the growth of the beneficial intestinal bifidobacteria.

Allergy/Intolerance caution: People with allergies, especially to peanuts and legumes, should avoid lupin. Sweet lupin also contains prebiotic FODMAPs.

Sustainability: They are eco-friendly with a low carbon foot-print. They play an important role in the ecological balance of agriculture by restoring nitrogen to soils, creating a better environment for growth.

How can Australian sweet lupin flour be used?

By replacing half the usual flour in recipes with lupin flour, one can dramatically reduce the carbohydrate load and glycaemic index of baked goods like bread, cakes, biscuits, scones as well as pancakes and chapattis. It can also be used to coat fish, chicken or patties and can be added to smoothies, yoghurt, dips, soups and breakfast cereals for extra protein and fibre. Lupin flour costs the same as other legume flours (e.g lentil, chickpea) but has much less starch and more fibre and protein resulting in a greater lowering of the GI of the food. For lupin flour recipes go to www.skinnybik.com

Are there any food products in Australia that use Australian Sweet lupin flour?

Food products with sweet lupin flour are slowly entering the Australian marketplace but are not widely available e.g. “Edwards” lupin, spelt and chia bread, “Protein Bread Co.” Gluten free protein bread, “Heinz” gluten free pasta and “Skinnybik” sweet and savoury gluten free lupin cookies.



Who developed Skinnybik lupin cookies and why?

Australians love biscuits and cookies. About half the population eat them on a weekly basis, especially with tea or coffee. Nutritionists advise Australians to avoid them because they are mostly full of refined sugar and starch, bad fats and too low in fibre and protein. Gluten free cookies can be particularly unhealthy due to the highly processed starchy high GI nutrient poor flours made from rice, potato and tapioca. **But why can't biscuits be healthy?** My patients love biscuits and refuse to give

them up. I was challenged by one of my patients (who was coeliac, overweight and had type 1 diabetes!) to develop a healthy biscuit range as the “Nutrition expert”. She said to me “make sure it's also tasty and filling!”

How good are Skinnybik lupin cookies?

I took on the challenge and developed a range of gluten free sweet and savoury cookies using lupin flour and other healthy ingredients. The result was astonishing – my cookies had 400% more fibre, half the refined carbs/sugar, double the protein, 80% less saturated fat than plain sweet biscuits and only 56 calories each (per 15g) with a delicious chewy scone-like texture. They are the only cookies on the market with a 4.5 health star rating!



Then I had to test them on my patients. Would they like them? Would they use them as a healthy sweet snack in place of other less healthy sweet cookies and indulgences? Would they help reduce hunger between meals? Would they be helpful for weight management? After 3 years of testing on thousands of patients I can confidently say that all 4 flavours (P.S. one flavour is low fodmap Spelt) are very popular. The overwhelming feedback is that they are a guilt free better for you low sugar snack that **STOPS HUNGER**. Many of my patients on weight loss programs have lost weight whilst eating up to 4 Skinnybik cookies a day! **Purchase Skinnybik (free delivery) from www.skinnybik.com.**

Reference: Kouris-Blazos A, Belski R. Health benefits of legumes and pulses with a focus on Australian sweet lupins. Asia Pac J Clin Nutr 2016; 25 (1): 1-17 (this paper can be downloaded from www.skinnybik.com “News & Media” section)

GF LUPIN CHOC BEETROOT CAKE

(more recipes on www.skinnybik.com)

This cake has a great moist fluffy texture due to the yoghurt and high content of beetroot (25%) which you can't taste! All you can taste is chocolate! It also has 25% less calories, 35% less sugar, 45% less carbs, 50% more protein and 400% more fibre than regular chocolate cake (see table below). Despite replacing half the sugar with sweetener, this cake is not very sweet.

INGREDIENTS

- 150g (1 1/3 cup) gluten free flour
(if you do not need to eat gluten free you can try wholemeal spelt flour instead and cake texture will be lighter)
- 150g (2 cups) lupin flour
- 70g (1/2 cup) cooking cocoa
- 80g (1/3 cup) Cadbury's dark chocolate chips (these are gluten free)
- 7g (1 level tsp) bicarb soda
- 10g (2 tsp) vanilla sugar
- 300g (3 medium) beetroot (use vaccum sealed boiled beetroots rather than canned which may have added salt/sugar or bake raw peeled beetroot in oven in foil until cooked)
- 250g (1 cup) low fat plain yoghurt
- 180g (3 large) eggs
- 100g (1/2 cup) canola or olive oil
- 100g (2/3 cup) dark brown sugar
- 25g (3/4 cup) granulated natural sweetener (stevia/natvia) or artificial sweetener (splenda - this tastes the best). If you don't want to use sweeteners you can use sugar instead, but cake will become high in sugar.



Method:

- 1) Preheat oven to 160C (plus fan). Grease (or spray) a medium size loaf pan. Dust with flour to avoid cake sticking to pan.
- 2) Grate or blend beetroot (in a blender).
- 3) Whisk eggs and then add sugar, sweetener, oil, yoghurt, and beetroot. Mix until well combined.
- 4) In a separate bowl combine flours (sifted), choc chips, cocoa (sifted), soda, vanilla.
- 5) Add egg mixture to flour mixture and combine well.
- 6) Bake for about 65 min (insert a knife into the cake and it should come out clean).
- 7) Set aside for 5 minutes, before turning out onto a wire rack to cool completely.
- 8) Instead of serving with icing, try a low fat Greek style yoghurt (e.g Chobani) mixed with vanilla, some grated beetroot and a little honey!



Even though this lupin choc cake is healthier, a typical serve (50g) still provides 138 calories, so take it easy! It has only 6.5 g sugar, 12.5g carbs and a whopping 3.5g fibre per serve.

per 100g (typical serve is 50g so divide numbers in table by 2)	Lupin Choc Beet Cake (no icing) per 100g	Regular Choc cake (no icing) per 100g
Energy kJ	1117 (266 cal)	1535 (365 cal)
Protein g	9	6
Fat g	12	18
Saturated	2	11
Carbohydrate g	25	45
Sugar g	13	20
Fibre	7	1.5
Sodium	200	500