

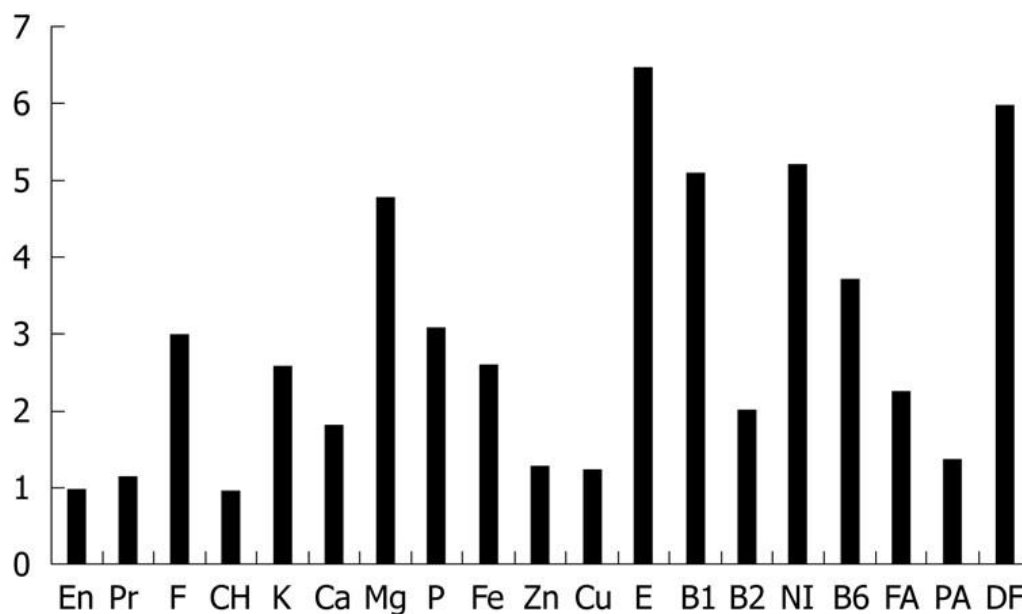
The Science behind Protein Superfoods

There is a treasure trove of clinical research that's available on plant-based, protein superfoods. Understanding the science behind these superfoods can help brand developers in many ways.

- ♦ It helps them identify the best ingredients or combination of ingredients based on relevant and current science.
- ♦ The research can be indispensable in the marketing of plant-based, protein products to consumers as it provides evidence-based support.

Let's evaluate eight, plant-based, protein superfoods that represent some of the best protein ingredients available today.

Brown Rice is regarded as a complete protein source. It provides the body with nine essential amino acids that cannot be synthesized by the body. As documented in the World Journal of Gastroenterology Research Article (1), brown rice is an excellent form of protein with high levels of nutritional elements. The following chart shows the nutritional elements of brown rice in comparison with white rice. The amount of elements in 100 g of edible food is expressed in comparison with those in white rice, whose value is 1. Brown rice is richer in almost all elements in comparison.



En: Energy; Pr: Protein; F: Fat; CH: Carbohydrate; K: Potassium; Ca: Calcium; Mg: Magnesium; P: Phosphorus; Fe: Iron; Zn: Zinc; Cu: Copper; E: Vitamin E; B1: Vitamin B1; B2: Vitamin B2; NI: Niacin; B6: Vitamin B6; FA: Folic acid; PA: Pantothenic acid; DF: Dietary fiber.

Source: World Journal of Gastroenterology

Pea Protein is another excellent source of easily absorbed and digested protein. In a recent randomized crossover trial at the University of Toronto (2), pea protein lowered blood glucose in healthy young men. The researchers noted that it supports the use of pea components as value-added protein ingredient in foods that help to improve glycemic control. Pea protein includes important amino acids: Lysine for growth and bone health; branched-chain amino acids (Leucine, Isoleucine, Valine) for energy metabolism; Arginine helps in muscle metabolism; and Glutamine which helps with nitrogen balance.



Organic Hemp is rich in fiber and essential fatty acids that help maintain healthy hormone levels. A Department of Human Nutritional Sciences Study (3) at the University of Manitoba, Canada, evaluated the quality of protein from hemp seed products through the use of the protein digestibility-corrected amino acid score (PDCAAS) method. The results support protein claims for hemp seed products and provides evidence that hemp proteins have a PDCAAS equal to or greater than many grains, nuts, and some pulses. The study also revealed that hemp protein flour had the highest crude protein (CP) content at 41%.



- Hemp Seed CP: 23.97%
- Hemp Nuts CP: 35.86%
- Hemp Protein Flour CP: 40.68%
- Hemp Hulls CP: 12.65%

Purple Corn, considered as a sacred food by ancient South American cultures, provides high levels of anthocyanin, an anti-oxidant that promotes heart health and healthy cell growth. According to a Cornell University Study (4) an international team of researchers discovered that purple corn, a rich source of anthocyanins and a phenolic compound called ferulic acid, had a beneficial effect of reducing participants' blood pressure by the end of the study. They also noted that purple corn from Peru had the highest anthocyanin concentration which was an anti-carcinogenic agent that has been shown to be effective in fighting the tumors which lead to breast and liver cancer.



Sacha Inchi has tryptophan and is protein rich which may also aid with weight management. Additionally, Sacha Inchi appears to have beneficial effects on the lipid profile of patients with high cholesterol as determined in a 2011 study published in the Peruvian journal *Revista Peruana de Medicina Experimental y Salud Pública* (5). The study included 24 patients of ages 35 to 75 and their total cholesterol (TC), high-density lipoproteins (HDL), triglycerides (Tg), glucose (G), non-esterified fatty acids (NEFA) and insulin (I) levels in blood, were measured. They randomized the patients to receive sacha inchi oil orally 5 ml or 10 ml for four months. The oil intake produced a decrease in the mean values of TC, and NEFA, and a rise in HDL—all very positive outcomes.



Suma Root, commonly called Brazilian Ginseng in the USA, grows in the tropical rain forests of South America. The indigenous peoples of the Amazon region have used the root for generations for energy and as a rejuvenating tonic. It is vitamin and mineral rich plus it contains trace elements and electrolytes. Research at the University of São Paulo, Brazil discovered that Suma root and its extracts have shown anti-neoplastic, chemopreventive, and anti-angiogenic properties (6). The results indicate that chemopreventive effects are related to the control of cellular proliferation and apoptosis and are directly influenced by the level of root concentration. Different concentrations of powdered root at 0%, 2% and 10% were assigned to three different groups. The group that received the highest root concentration of 10% achieved superior results. This bodes very well for extracts of the root.



Moringa is a powerful anti-oxidant as well as a protein-loaded plant source that may aid the immune system and support energy levels, According to a Malaysian University Study (7) “*Moringa oleifera* contains essential amino acids, carotenoids in leaves, and components with Nutraceutical properties, supporting the idea of using this plant as a nutritional supplement or constituent in food preparation. Some nutritional evaluation has been carried out in leaves and stem. An important factor that accounts for the medicinal uses of *Moringa oleifera* is its very wide range of vital antioxidants, antibiotics and nutrients including vitamins and minerals. Almost all parts of *Moringa* can be used as a source for nutrition”.

An Egyptian Study (8) revealed that the aqueous extract of Moringa leaves possesses potent hypoglycemic effects through the normalization of elevated hepatic pyruvate carboxylase enzyme and regeneration of damaged hepatocytes and pancreatic β cells via its antioxidant properties.

The University of Sadat City, Egypt is planning on doing more research of Moringa as an anti-diabetic agent.

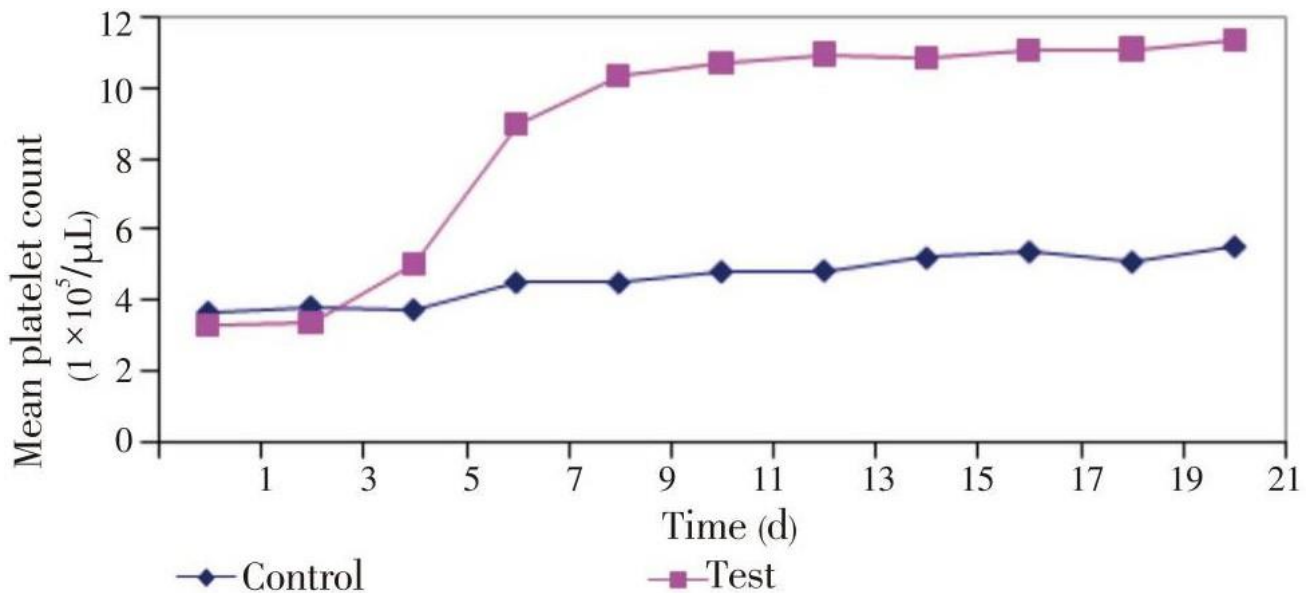


Green Papaya juice powder has powerful enzymes that break down proteins and also helps promote healthy digestive function. Papaya is loaded with nutrients. Here are the nutritional values of papaya per 100 grams (daily values in parenthesis):

Energy-	163 kJ
Calories-	39 kcal
Sugars-	5.90 g
Carbohydrates-	9.81 g
Dietary fiber-	1.8 g
Fat-	0.14 g
Protein-	0.61 g
Calcium-	24 mg (2%)
Iron-	0.10 mg (1%)
Magnesium-	10 mg (3%)
Phosphorus-	5 mg (1%)
Potassium-	257 mg (5%)
Sodium-	3 mg (0%)
Vitamin A	328 mg (41%)
Vitamin B1	0.04 mcg (3%)
Vitamin B2	0.05 mg (4%)
Vitamin B3	0.338 mg (2%)
Vitamin B6	0.1 mg (8%)
Vitamin B9	38 mg (10%)
Vitamin C-	61.8 mg (74%)



A University of Peradeniya, Sri Lanka study (9) made a remarkable discovery in 2013. Papaya extract significantly increased the platelet and red blood counts in their test group from Day 3 as compared to the control group, as shown in the following diagram.



Source: University of Peradeniya, Sri Lanka.

All these plant-based, protein superfoods have been well-researched over the years and represent some of the best proteins available today. NutraProtein Power Blend™ contains all eight of these superfoods. NutraProtein Power Blend™ is easily digested, has a high bioavailability rate, plus it's lactose, soy and gluten-free.

With high absorbability and solubility, NutraProtein Power Blend™ combines the health-giving power of Brown Rice, Pea Protein, Organic Hemp, Purple Corn, Sacha Inchi, Suma, Moringa and Green Papaya. For optimum flavor and a pleasant aftertaste, Stevia and Vanilla are added. This protein blend can be made into a delicious, energizing drink just by adding it to water, all types of milk, or smoothies. It can also be added to no-bake and baked desserts, snacks and entrées to boost their protein content and nutritional value.

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