

Composition & Chemical Analysis of Honeybee Pollen

Bee pollen is essentially the male seed of a flower blossom that has been collected by bees and to which they add certain digestive enzymes. The pollen is gathered using special collection nets, which the bee rubs against as it enters the hive.

Composition

SOURCES

Enviro Bee Products Distributors
5709 - 173 St.
Cloverdale, B.C. V3S 4A3
(604) 574-0690
<http://www.envirobee.com/beepollen2.htm>

JOEBEES.com
877-300-5632
info@joebees.com
<http://www.joebees.com/analysis.html>

NutritionalSupplementsCenter.com
nutritionalsupplements.com
<http://www.nutritionalsupplementscenter.com/info/HealthSupplement/beepollen.html>

American Health & Nutrition
800-344-8653
<http://buybeepollen.com/chemanalysis.htm>

Sunflower Organics
(619) 263-5203
info@honeybeepollen.com
<http://www.honeybeepollen.com/IncredibleHoney.html>

Vitamins: Provitamin A, B-1 Thiamin, B-2 Riboflavin, B-3 Nancin, B-5, B-6 Pyridoxine, B-12 (cyanocobalamine), Pantothenic acid, Vitamin C, F, Vitamin D, Vitamin E, Vitamin H, Vitamin K, Vitamin PP, Folic Acid, Choline, Inositol, Rutin.

Minerals: Calcium, Phosphorus, Potassium, Iron, Copper, Iodine, Zinc, Sulfur, Sodium, Chlorine, Magnesium, Manganese, Molybdenum, Selenium, Boron, Silica, and Titanium.

Other: Amino Acid, Carbohydrates, Fatty Acids, Enzymes & Co-Enzymes, Fats.

Bee Pollen contains at least 22 amino acids, 18 vitamins, 25 minerals, 59 trace elements, 11 enzymes or co-enzymes, 14 fatty acids, 11 carbohydrates and approximately 25 % protein. Bee pollen is extremely rich in carotenes, which are metabolic precursors of vitamin A. It is also high in B complex and vitamins C, D, E and Lecithin. Bee pollen contains over 50 % more protein than beef, yet its fat content is very low. It is also an excellent vegetarian source of protein typically possessing more of the essential amino acids, pound for pound, than animal proteins like meat, eggs, and dairy products.

Daily use of pollen also ensures an intake of the more obscure, yet essential trace minerals that may be lacking from commercially grown produce and are often not included in vitamin mineral supplements. Most of us are unaware that the nutrients supplied by cooked fruits, vegetables and meats are not considered fresh because their enzymes have been exposed to high heat. Even taking a multivitamin can't offer the superior nutrient array of raw and fresh food.

Chemical Analysis of Honeybee Pollen

Vitamins:

Provitamin A (carotenoids) 5-9 mg %
Vitamin B1 (thiamine) 9.2 micrograms %
Vitamin B2 (riboflavin)
Vitamin B3 (Niacin)
Vitamin B5 (panothenic acid)
Vitamin B6 (pyridoxine) 5 micrograms %
Vitamin B12 (cyamoco balamin)
Vitamin C (ascorbic acid)
Vitamin D - Vitamin E
Vitamin H (biotin)
Vitamin K. Choline. Inositol
Folic Acid, 5 micrograms %
Pantothenic acid 20-50 micrograms/gram
Rutin. 16 milligrams %
Rutin in beehive pollen 13%
Vitamin PP (nicotinicamide)

Minerals:

Calcium. 1 - 15% of ash
Phosphorus 1-20% of ash
Iron, 1-12% of ash
0.01-1.3% of fresh pollen
0.6-7.1 mg % of air dried
Copper 05-08% of ash
1.1-2.1 mg % of fresh
Potassium, 20-45% of ash
Magnesium, 1-12% of ash
Manganese, 1.4% of ash, 0.75 mg %
Silica, 2-10% of ash
Sulphur, 1% of ash
Sodium - Titanium-Zinc
Iodine - Chlorine
Boron-Molybdenum

Enzymes & Co-enzymes:

Disstase
Phosphatase
Amylase
Cataiase
Saccharase
Diaphorase
Pectase
Cozymase
Cytochrome systems
Lactic dehydrogenase
Succinic dehydrogenase

Note: The cozymase in mixed fresh pollen runs about 0.5-1 .0 milligram per gram. comparable to the amounts in yeast. (Bee pollen contains all known enzymes & co-enzymes and probably all that will be known in the future.)

Pigments:

Xarmmepayll, (20-150 micrograms per gram.)
Carotates (50-150% micrograms per gram.) Alpha & Beta Carotene

Fatty Acids (Conifer Pollen)

Total list identified are:
Caproic (C-6) - Caprylic (C-8)
Capric (C-10) - Lauric (C-12)
Myristic (C-14) - Palmitic (C-16)
Palmitoleic (C-15) one double bond
Uncowa - Stearic (C-18)
Oleic (C-18) one double bond
Linoleic (C-18) two double bonds
Arachidic (C-20) - Stearic (C-22)
Limolenic (C-18 three double bonds)
Eicosanoic (C-20 one double bond)
Brucic (C-22 one double bond)
Pseudotduga dry pollen contains
0.76-0.89 % fatty acid. Major are:
Oleic, Palmitic, Linoleic,
Pinus dry pollen contains:
125-1.33% fatty acid based on
dry weight of pollen, major are:
Linolenic, Oleic - Stearic.

Fats & Oils: - 5%

Fatty acid (may be 5.8%)
Hexadecanol may be 0. 14% of pollen by weight.
Alpha-amino butyric acid is present in pollen fat.
Unsaponifiable fraction of pollen may be

2.6% by weight.

Water: 3-20% of fresh pollen

Proteins, Globulins, Peptones, and Amino Acids:
7-35%. average 20%: 40-50%
may be free amino acids: 10-13% consists
of amino acids in dry pollen.

35 grams of pollen per day can satisfy the
protein requirements of man.

25 grams of pollen per day can sustain man because it
contains 6.35 grams as indicated by Rose.
Plus other amino acids.

Carbohydrates:

Gums - Pentosans - Cellulose Sporonine

(7-57% of pollen of various species:

29% in bee collected.)

Starch (0-22% of pollen)

Total sugars (30-40%)

Sucrose or cane sugar

Levulose or fruit sugar / fructose

Glucose or grape sugar

Reducing sugars (0.1-19%)

Bee-collected: Non-reducing sugar 2.71%.

Reducing: 18.82-41.21% Mean. 25.71%

A nutrient is a molecule you must have, but the body cannot manufacture. You have to ingest (eat) it. If you don't have it, at first you will not feel well. If you don't get it for a longer time, you will begin to feel sick. If you don't get it for too long a time you are probably going to die.

Each ounce of honeybee pollen contains just 28 calories. Only 7 grams are carbohydrate, plus 15% Lecithin, the substance that burns away fat and 25% is pure protein.

Pollen contains the same number of amino acids, but vary greatly in quantity of each:

Tryptophan 1.6% - Leucine 5.6% Lysine 5.7% - Isoleucine 4.7% Methionine 1.7% - Cystine 0.6% Threonine 4.6% -

Arginine 4.7% Phenylalanine 3.5% - Histidine 1.5% Valine 6.0% - Glutamic acid 2.1% Tyrosine - Glycine - Serine - Proline -

Alanine - Aspartic acid Hydroxyproline - Butyric Acid.

Twenty-eight minerals are found in the human body. Fourteen are vital, essential elements present in such small amounts that they are called - "micro- nutrients." Honeybee pollen contains all 28 minerals:

Nucleosides

Guanine

Hexodecanol

Auxins

Xanthine

Alpha-Amino-Butyric Acid

Brassins

Hypoxanthine

Monoglycerides

Gibberellins

Croctin

Diglycerides

Kinins

Zeaxanthin

Triglycerides

Vernine

Lycopene

Peutosaus

Miscellaneous:

Waxes, Resins, Steroids, Growth Factors, Growth Isorhanetin, Vernine, Guanine, Xanthine, Hypoxanthine, Nuclein, Amines, Lecithin, Glucoside of Isorhanstin, Glycosides of Quercetir, Selenium, Nucleic acids flavonoids, phenolic acids, terpenes & many other yet undefined nutrients.