

BEE POLLEN

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- Pollen grains are small, male reproduction units (gametophytes) formed in the anthers of flowering plants. The pollen is transferred onto the stigma of a flower (pollination) by either wind, water, or various animals (mostly insects), among which bees (over 25,000 different species) are the most important ones.
- It is important to know that pollen from each species is different and no one pollen type can contain all the characteristics ascribed to “pollen” in general. Therefore, “bee pollen” will always refer to a mixture of pollen from different species, unless otherwise mentioned.
- A foraging honey bee rarely collects both pollen and nectar from more than one species of flower during a single trip. Thus the resulting pollen pellet on its hind leg contains only one or very few pollen types.
- Pollen's differing colors are due to different flavonoids and carotenoids which besides being anti-oxidants are also pigments.
- Most pollen grains have a very hard outer shell (sporoderm) which is very difficult or impossible to digest. It is so durable that it can be found in fossil deposits millions of years old. There are, however, pores or holes in the shell which allow germination and also extraction of the interior substances. Honey bees take it further by fermenting the pollen through the process of making bee bread which makes the nutrients more accessible.
- Clinical tests show that orally ingested pollen is rapidly and easily absorbed. Most of its components pass directly from the stomach into the blood stream. Bee pollen contains “all” the necessary nutrients from humans but not in the exact ratios we need.

Pollen – Chemical Composition

- Proteins and free amino acids – Protein contents of above 40% have been reported, but the typical range is 7.5 to 35%. Pollen contains all 22 amino acids humans need to live and is especially high in proline and hydroxyproline, the building blocks for collagen. 30 grams (two tablespoons) of pollen a day satisfies the human need for amino acids.
- Sugars (mono-, di-, oligo-saccharides) – Sugar content ranges from 15-50% and starch content is very high (up to 18%) in some wind-pollinated grasses (Schmidt and Buchmann, 1992).
- Enzymes (approximately 200) - Enzymes, coenzymes, and hormones (including growth hormones) that may be at least partially active in humans. The anti-oxidant enzyme superoxide-dismutase (SOD) is commonly found in pollen.
- Lipids – Primarily free unsaturated fatty acids, Lecithin/phospholipids (the main compounds in the structure of biological membranes), and phytosterols/cholesterol (the main precursor of bile acids and steroid hormones). Lipids in pollen are an important energy source. Some esters of the free fatty acids are considered growth factors – Auxins, brassins, gibberellines, and kinins.
- Minerals – Macro-elements and oligo-elements which regulate enzymatic processes. Elements: Mn, Fe, P, Zn, Cu, Mg, Ca, K, Na, Ni, Bo, Cr, Mo, I, F, Se.
- Vitamins – hydro and lipid soluble act as enzyme cofactors

B1 Thiamin	9.2mcg/gram of Pollen
B2 Riboflavin	18.5
B3 Niacinimide	200
B5 Pantothenic acid	30-50
B6 Pyridoxine	5
B9 Folic Acid	3-7
Biotin	.32
A	0.5-0.9 (very low)
C	7-15mg
E	14mcg/gram

Pollen Chemical Composition – Continued

- Hydrooxycinnamic acid (HCA) amides are involved with flowering but have anti-viral and antibiotic activities.
- Flavonoids – antioxidants, anti-inflammatory, anti-cancer, pigments (red, yellow, purple)
- Carotinoids – antioxidants, pigments (yellow and orange)
- Gonadotropins – stimulate the testes and ovaries
- Estrogenic compounds – compete with and substitute for estrogens at different times
- Rutin – anti-inflammatory, antioxidant, decrease platelet aggregation

Pollen Collection and Processing

- Fresh pollen contains 10% to 12% water. Dried pollen has about 4% water.
- It is estimated that drying in the sun decreases potency 50% due to oxidation of antioxidants.
- Best to freeze immediately after harvest. Second best is to refrigerate. Best way to dry is at 86°F (30°C) in the dark.

Tolerance

- No contra-indications even in pregnancy
- No incompatibilities with other therapies
- No tolerance even in long lasting administrations
- No toxicity even in high dosage

Possible Negative Effects

- Unpleasant feeling of taste and flavor nausea
- Light intestinal disorder (light diarrhea) during first day of high dosage
- Gastric pains (when pellets are not dissolved)
- Allergic reaction including hives, itching and anaphylaxis

Pollen – Allergies

- Based on a concept of oral desensitization where a small amount of allergen of parts of an allergen are absorbed directly into the blood stream and the body develops a tolerance.
- It is best to use “local” pollen but some results are obtained even with pollen that is not local (especially if it is from the same type of plant that is the source of the allergic reaction)
- Local raw unfiltered honey has traditionally been used for this purpose but it appears to be more efficient to use straight pollen.

Allergy Protocol

- | | |
|---|---------------------------------------|
| - 1 st day 1 granule of pollen | 6 th day 1/8 of a teaspoon |
| - 2 nd day 2 granules of pollen | 7 th day ¼ of a teaspoon |
| - 3 rd day 4 granules of pollen | 8 th day ½ of a teaspoon |
| - 4 th day 8 granules of pollen | 9 th day 1 teaspoon |
| - 5 th day 16 granules of pollen | Continue daily ½ to 1 teaspoon |

Pollen General Uses

- All body systems benefit from bee pollen with special emphasis on:
 - Reproduction
 - Immune
 - Nervous
 - Lipid Metabolism
- Increased energy and endurance
- Help with weight loss or gain depending on need
- Multivitamin (especially in pregnancy)
- Allergies and Asthma
- Anemia
- Improves overall immunity
- Aids in health conditions such as: Crohn's disease, seizures, cancer, radiation treatments, hepatitis, prostate diseases, ulcers, and more.
- Antibiotic

Pollen – Cognitive Performance

- “Bee-pollen preparations increase mental work performance...In five of eight children who were mentally lazy and doing poorly in school, mental performance and grade point average improved significantly after they took bee pollen for twelve weeks.” “In ten adult patients, a faulty memory and lack of concentration were improved after their diets were supplemented with bee pollen for three months – A Summary of Clinical Tests Concluded With Bee Pollen and Other Substances, *Naturheilpraxis*, 1977

Pollen – Cancer Treatment – Pollen does not directly attack tumors. It stimulates the immune system.

- Mice bred to develop and die from tumors were fed bee pollen at a ratio of 1:10,000 to mice chow. In untreated mice tumors developed in 100% at an average of 31.3 weeks. In the pollen fed mice the average onset was 41.1 wks and some of the mice were still tumor free at about 60 weeks when the test terminated – Delay in the Appearance of Palpable Mammary Tumors in C3H Mice Following the Ingestion of Pollenized Food, William Robinson, *Journal of the National Cancer Institute*, 1948

Pollen – Protection from Radiation

- In 1978, 84 female patients getting radiation for gyn cancer were having side effects such as lack of energy, nausea, diarrhea, anorexia, headache, etc. After taking the pollen preparation (with royal jelly and honey)
 - Fatigue: none 30.5%, “light” 66.7%, still severe 2.8%
 - Anorexia: none 38.9%, “light” 41.6%, moderate 8.3%
 - Nausea: none 44.4%, minimal 50%*Therapeutic Effects of Melbrosin in Irradiation Disease*, Osmanagic, J, Mavric, N., from University of Vienna, 1978
- Treatment of Cancer Treatment Side Effects – Offers protection against chemotherapy & radiation therapy – Mixture containing:
 - 25 grams pollen
 - + 2 grams royal jelly
 - +223 grams honeyTake 1-3 teaspoons/day

Pollen – Prostate Diseases

- The phytochemicals lycopene, beta-sitosterol, other phytosterols and numerous flavonoids contained in bee pollen have been shown to inhibit the growth of prostate tissue and to reduce pain, inflammation and the risk of prostate cancer – Clouatre, Dallas, Ph.D., *Pollen Extract for Prostate Health*, 1997, San Francisco, CA: Pax Publishing, Buck, A.C., et al., Treatment of Chronic Prostatitis and Prostatodynia with Pollen Extract, *British Journal of Urology*, 1991.64, Rugendorff, E.W., et al., Results of Treatment with Pollen Extract (Cernilton) in Chronic Prostatitis and Prostatodynia, *British Journal of Urology*, 1993.71
- The author of The Overlapping lower urinary tract symptoms of benign prostatic hyperplasia and Prostatitis, Nickel, J. Curtis, in *Current Opinion in Urology*, 16(1):5-10, Jan 2006, recommends phytotherapies including saw palmetto and bee pollen.

Pollen – Reproductive and Sexual Function

- Estrogenic and gonadotropic hormonal stimulating materials have been isolated from pollen. These stimulate both male and female sex organs and may explain reports of improved sexual function in men and increased fertility in woman – The Gonad Stimulating Potency of Date Palm Pollen Grains, Soliman, FA., Soliman, A., *Experientia*, Oct. 1957
- In a study of 120 girls between 15 and 20 years of age with symptoms of pre-menstrual syndrome more than 90% had resolution of all symptoms within two months. In the control group less than 5% improved – The Treatment with Melbrosin of Dysmenorrhea in Adolescence, Pokrajcic, L., Osmanagic, L
- A similar result was achieved by Dr. Osmanagic in women with menopausal symptoms, especially in those with surgically induced menopause.
 - Formula for Pre-menstrual and menopausal symptoms:
 - 25 grams pollen + 2 grams Royal Jelly + 250 ml Honey
 - Dosage: 1 teaspoon in the AM for pre-menstrual
 - 1 tsp twice a day for menopause

Pollen – Lipid Metabolism

- Summary: Bee pollen in the diet acted to normalize cholesterol and triglyceride levels in forty patients. HDL cholesterol levels increased, LDL levels decreased – Clinical Tests Concluded With Bee Pollen and Other Substances, *Naturheilpraxis*, 1977

Pollen – For Weight Loss

- It has phenylalanine which suppresses appetite by acting on the appetat.
- Can help in both wight gain and wight loss -provides about 250 cal/100 mg (6+tablesp)
- Weight Loss Regimen: Two 20 to 40 gram meals a day
 - One regular meal
 - Between meals- more pollen
- Weight Gain Regimen: 10 to 30 grams of Pollen plus
 - 20-50 grams of Honey
 - With each meal and for snacks

Bee Bread – the bees make bee bread to feed larva. They fill the bottom 2/3 of a honey comb cell with pollen then 1/3 with honey and cap the cell with wax and propolis.

- Recipe: 3 lbs honey + 2.5 lbs pollen in a one gallon jar. Swirl to mix, then turn jar over 2 or 3 times a day for two weeks. Bee bread is easier to digest than pollen and usually tastes better.