Propolis—Defends the City, Stops Invaders

There’s little doubt that most people have heard about the health benefits of honey—immune and DNA protection are just two of them—but I think fewer people are probably familiar with propolis.

Propolis is made from the resins gathered from trees and other plants and then modified by the bees’ own enzymes as they process the material, mix it with beeswax, and make it into a protective antibacterial glue and sealant. It’s not surprising that the word “propolis” means “defender of the city” in Greek.

Propolis was used as a medicinal ingredient in the ancient world, and continues to be intensively studied and recommended today.

Propolis Provides Powerful Nutrients

The color and natural properties of propolis vary depending on geography. While many bees tend to use resins from trees (poplars and conifers are a favorite) as a source, other flowers and plants are often part of the mix, too. That’s why you’ll hear propolis referred to as “green”, “red”, “yellow”, or any variety of names. Interestingly, even though the plant sources of propolis can differ around the world, they all have positive effects on health. However, many experts prefer the European variety to provide maximum benefits for fighting pathogens.

Bees seek out the best resins they need to protect their hives. They instinctively know what works. Tree resins and plant saps perform the same protective functions across specie lines. The main compounds in propolis typically include polyphenols, vitamins (including vitamins B1, B2, B6, C, and E), minerals (including magnesium, potassium, zinc, and calcium), enzymes and antifungal and antibacterial flavonoids, plus pinene and other essential oils inherent in tree and plant resins.

Polyphenols, including flavonoids and phenolic acids, are the prime movers of antioxidant activity in propolis. In many areas of the world, Eastern Europe among them, propolis has been extensively researched for antifungal, antibacterial, and antiviral properties as a natural offshoot of both beekeeping and traditional medicine. As antioxidants, the bioflavonoids in propolis work in two ways: they stop the formation of free radicals to begin with, and reduce the potency of existing free radicals. Other propolis research has found that propolis has liver-protecting effects as well.

Strong Antibacterial Power to Fight “Superbugs”

The over-prescription of antibiotics has led to dangerous bacterial resistance, creating a class of “superbugs” that synthetic antibiotics can’t stop, including methicillin-resistant Staphylococcus aureus (MRSA), which is especially troublesome following surgery or anytime the immune system is weakened. Fortunately, propolis can stop it.

A study at the University of Heidelberg tested a propolis extract (GH2002) against a variety of disease-causing bacteria, including MRSA, vancomycin-resistant Enterococcus faecium (VRE), Candida albicans, and Streptococcus pyogenes.

Terry recommends taking 100 mg of concentrated, purified bee propolis extract daily. If additional support is needed, increase to 100 mg twice daily.

• Stops harmful, resistant bacteria, including MRSA and Candida
• Fights viral infection
• Reduces inflammation
• Fights tumor formation
• Stops free radical damage

Enterococcus faecium (VRE), Candida albicans, and Streptococcus pyogenes.
Within six hours, propolis stopped the activity of *S. pyogenes*, the cause of strep throat and hard-to-stop skin infections. The study also found that it had a high degree of antibacterial activity against all tested MRSA strains, and inhibited *Candida* as well. While this test did not show an ability to kill off VRE as it did with other dangerous bacteria, it was able to stop it from further growth. Because of these dramatic results, the researchers concluded that propolis extract might be used in the development of alternative products for therapy of microbial infections.

Other studies have found similar results. British research also discovered that propolis shows antibacterial activity, and other work has shown that propolis has strong antifungal abilities, reducing the activity of *Candida albicans*, and inhibiting dangerous *Staphylococcus aureus* and *Escherichia coli* bacteria. The researchers found that it was propolis from Northern and temperate zones (like Europe), that provided the phenolic acids and flavonoids that fight bacteria and fungus.

Laboratory work in Bulgaria found that propolis is a strong inhibitor of many strains of *Helicobacter pylori* bacteria, known for causing ulcers and gastric cancer. In fact, the National Institutes of Health report that *H. pylori* is the leading cause of peptic ulcers worldwide, and that about two-thirds of the world population is infected with the bacteria. Even though *H. pylori* doesn’t always develop into an illness, the fact that propolis can defend against it is just one more point in its favor.

**Antiviral**

Research at the University of Heidelberg pitted a propolis extract (GH2002), against herpes simplex virus-1 (HSV-1) and found that it reduced the formation of viral plaques (the areas of cell destruction) by 98%. Interestingly, the researchers stated that while only two of the analyzed compounds in propolis (galagin and chrysin) showed antiviral activity separately, other components of the whole extract, (caffeic acid, p-coumaric acid, benzoic acid, and pinocembrin) showed stronger effects than single constituents.

Other research using this same propolis extract as a topical found that it also suppressed herpes simplex virus 2, reducing the strength of the virus by 99%. The researchers also discovered that pretreatment prior to an infection was significantly effective at stopping the herpes virus. They concluded that the propolis extract could be an effective topical for stopping recurring infections as well.

**Anti-inflammatory, Anti-tumor**

Propolis is more than an antibacterial and antiviral. It has been shown to stop tumor growth as well. Remember when I mentioned that *H. pylori* is the cause of gastric cancer? Well, aside from that, a study from Thailand found that propolis shrank cancer cells after 24, 48, and 72 hours of treatment. Scientists reporting in the journal *Evidence Based Complementary and Alternative Medicine* found that the polyphenols in propolis were mainly responsible for cancer cell inhibition, and consider it a possible treatment option for different types of leukemia.

**What to Look for in Propolis**

Even though many propolis extracts from around the world have shown similar abilities, some are simply more effective than others, so be selective when you look for your propolis extract.

Found raw in the hive, propolis is often mixed with wax (which doesn’t break down in the body or provide any benefits), dirt, bee’s wings, and other debris. It needs to be purified and clear of beeswax before it can be truly useful. It should also be a clinically-validated variety, so you can start off with a propolis extract that has already shown results. Additionally, the best extracts will be from sources with a more “controlled” environment—that is, from hives that are strategically placed near a stand of specific trees that produce beneficial resins that bees use naturally. That way you’re getting a propolis that has been standardized and provides consistent benefits.