

TOP 5 HEALTH BENEFITS OF PROPOLIS



Historical records show us that bee propolis can give us a complete package of health benefit. Since the age of ancient Egypt until this present time, it has been widely used for various medicinal purposes.

This fact makes bee propolis as a very interesting research subject – especially in this 21st century, where evidence-based for herbal supplements have become a necessity. During this last 4 decades, there are hundreds clinical studies and researches that bring bee propolis as the main subject. One of the hot topics was discussing about the correlation between the benefits and its chemical substances. At the first, experts wanted to know what particular compounds that gives a certain therapeutic effects.

However, as more and more researches are performed, it was found that different bee propolis sample (from a different geographic location) contains different active chemical substances. This finding was hypothetically affecting propolis biological activities.

Is that a problem for us?

Talking about logic, this phenomenon created a hypothesis like this:

"Different chemical substances would give different biological activities. Biological activities determine the health benefits that we can get. Thus, each type of bee propolis would give a different health benefits for us."

You might find CAPE as an active anti cancer compound in European poplar-based propolis, but you won't likely find it in Brazilian propolis where Baccharian.sp is used as the source.

Explanation Behinds Chemical Diversity

What thing that makes the chemical substances different? First of all, we need to keep in mind that propolis is not directly produced like the way bees produce their venom. Bee venom produced directly from their body, while propolis is 'manufactured' from particular vegetation. So, the vegetation source is one of the main factor that directly determine its chemical substances. (For more detailed explanation, you can read about how bee propolis is made in this page).

"So, is that means that each propolis gives a different health benefits for us?"

Well, the answer to this kind of question was what experts trying to get. But for a short answer, bee propolis still gives at least the same five health benefits regardless of its chemical differences.

One of the very first research that studying this topic was done by Kujumgiev^[1]. Kujumgiev examined antimicrobial properties of bee propolis from different geographic location. Regardless of its chemical diversity, the result shows that all samples give notable antibiotic effects (antibacterial, antifungal, and antiviral). This fact aligns with the actual function of propolis for bee colonies – as the defender against various diseases, (especially American Foulbrood).

FOLLOW-UP RESEARCHES

Kujumgiev's work was then followed up by more studies. Many of those studies focused on a different biological effect of propolis, such as its anti cancer, hepatoprotective, antioxidant effect, anti-inflammatory, etc. Below are some other notable studies that you might need to know:

Study by Popova^[2], assess correspondence between biological activity and geographic location of bee propolis samples from Europe, Brazil and Central America by using statistical approach (Analysis of variance/ANOVA). Based on the study, it is found that European and Brazilian propolis have identical activity even though each of them contains different chemical substances.

Study by Kumazawa^[3], examined the antioxidant effect of bee propolis from numerous geographic location. He used sample from many regions such as Brazil, Uruguay, Argentina, Chile, China, Thailand, New Zealand, South Africa, Ukraine, Bulgaria, Austria, Hungary, United States and Uzbekistan. In this research, Kumazawa performed chemical analysis to identify and measure the result. He found 17 phenolic compounds from 16 types of different propolis sample. Each of bee propolis gives notable antioxidant effect, where significant antioxidant activity is originated from anti oxidative substances such as phenethyl caffeate or kaempferol.

THE TOP 5 LIST

The top 5 list of bee propolis benefits is compiled based on the fact that these therapeutic effects can be found on every sample of bee propolis from all over the world, regardless of its chemical variability. They are:

1. Antibacterial (including anti fungal, and some of them along with antiviral)
2. Anti-inflammatory
3. Anti tumor/Anti cancer
4. Hepatoprotective (capability to prevent damage to the liver)
5. Antioxidant activity

For a quick review, here is the table^[10] that shows us the detailed therapeutic effects along with its accountable compounds:

	Bee Propolis Type			
	<i>European Propolis (poplar type)</i>	<i>Brazilian Propolis (Baccharis type)</i>	<i>Cuban Propolis</i>	<i>Taiwanese Propolis</i>
Antibacterial	Flavanones, flavones, phenolic acids and their esters ^[4]	Prenylated p-coumaric acids, labdane diterpenes ^[5]	Prenylated benzophenones ^[7]	Unidentified
Anti-inflammatory	Flavanones, flavones, phenolic acids and their esters ^[5]	Unidentified ^[5]	Unidentified ^[5]	Unidentified
Antitumor	Caffeic acid phenethyl ester ^[6]	Prenylated p-coumaric acids, clerodane diterpenes, benzofuranes ^[5]	Prenylated benzophenones ^[8]	Prenylated flavanones ^[9]
Hepatoprotective	Caffeic acid, ferulic acids acid, caffeic acid their esters ^[5]	Prenylated p-coumaric acids, flavonoids, lignans, caffeoyl quinic acids ^[5]	Unidentified ^[5]	Unidentified
Antioxidant	Flavonoids, phenolic and their esters ^[11]	Prenylated p-coumaric acids, flavonoids ^[5]	Prenylated benzophenones ^[8]	Prenylated flavanones ^[9]

All of the studies (which bring this particular topic) show us a very clear prove that even though the source and the exact chemical substances are different, bee propolis still gives at least those five therapeutic effects for us.

THE NEW PROBLEMS: STANDARDIZATION, EXACT DOSAGE, AND HEALTH CLAIMS

Despite the good news, there is a problem that caused by this wide chemical diversity. Indeed, it doesn't affect the kinds of health benefits that you might get, **but it does affect the significance level.**

For example, in terms of antibacterial effects:

It is found that antibacterial activity of Brazilian bee propolis and Europe was significantly higher compared to Central American propolis^[1]. While in other comparative study, researchers find that propolis from Brazil, Peru, Netherlands and China has equally significant hepatoprotective and free radical scavenging activity. However, it is not the same with their cytotoxic activity. The most significant cytotoxic activity belongs to Propolis from Netherland and China, while bee propolis from Peru shows a weaker cytotoxic activity^[2]

This different significance level is not only assessed for antibacterial and cytotoxic activity. There are many other comparative studies which assess possible therapeutic effects of propolis, such as its antifungal, anti cancer, antiviral and so on.

Like it or not, those scientific studies show us undeniable fact that propolis gives different significance level of health benefits due to its chemical diversity; which then, leads to standardization and health claim issues. Until this day, there is no international standard that can ensure consumers to get maximum benefits.

This also explains the reason of why the dosage is widely varied and can't be strictly determined. The most accurate information of suitable dosage will be the one issued by the manufacturers who comply with authorities (i.e: EFSA, or FDA).

Your understanding about the concept of propolis dosage and allergy can be very helpful.