

# What Exactly IS Bee Propolis?

Propolis is known as the cement of the beehive. It's sticky and usually darkish brown, and unlike builder's cement, (well, a good builder's cement anyway) it does not set completely hard but retains some of its stickiness. Even when dry, it is sticky, so sticky in fact that it can be a pain in the neck for your average beekeeper, because the frames that contain the honey get stuck to the inside of the beehive. As you can imagine, with all those bees around, hammering away at the beehive to loosen the frames is not something you want to be doing unless you're after one big dose of bee venom therapy!

Ready for a little Ancient Greek? No? OK, I'll keep it short: The word "propolis" comes from the Greek "pro", which can be translated as "in front of" and "polis", the word for "city".

I mentioned the similarity between propolis and cement. Truth is, propolis is much more than that. Composition varies a lot depending on the season and the locality, but give or take, the main components are as follows:

Resin 50%

Wax and fatty acids 30%

Essential oils 10%

Pollen 5%

Other compounds 5%

Now listen – that final 5% is what makes things really interesting. Propolis is a very complex substance. A 1998 study by A H Banskota of Toyama Medical and Pharmaceutical University in Japan found an amazing 300 components. Some of these components are what make propolis such a great natural antibiotic and anti-fungal agent. Later we'll find out why this property of propolis is so important.

## Where does Propolis Come From?

Glad you asked. Weirdly, making propolis is a habit that honey bees in Asia haven't taken up. It's only honey bees in the Western world that do it! The bees look for sticky resins such as sap – they have been seen collecting it from those big sticky buds you get on some plants and trees. They carry the resin back to the hive in the same way as they carry pollen – on the hairs of their back legs. The resin gets mixed with a little beeswax and hey presto, you have propolis ready for use. In a healthy hive, up to a pound of this bee cement is stored as building supplies over the season, in case there is some unexpected damage to be repaired; a bit like that tub of wood filler in the garage. (You know the one – sits there for two years then when you're desperate to use it, you find it's turned into a brick!)

## What do Bees use Propolis For?

Bees use it as a sort of filler, to plug gaps. It also strengthens the beehive, acting a bit like lacquer does when it's painted onto tissue paper; you know, like people used to do when they made model airplanes, makes everything stiffer and stronger. Bees also use propolis mixed with beeswax to make lids to fit over the so-called brood cells; the chambers where the young bees are raised. This helps to stop the youngsters from catching infections because of the antibacterial properties of propolis. Bees also use this handy substance to remodel the hive a little. In the wild, ideal beehive sites are in short supply, and sometimes the queen will find a plot that maybe isn't quite ideal. The natural contours of the site can make the construction work a little tricky, and propolis can be used to sort of smooth over the cracks – for example if the opening into the hive ends up just too big for safety, propolis is used to remodel the entrance hall, making it more cosy so bigger intruders can't get in.

Talking of intruders, if a little mouse decides one day to nibble a hole in that beehive so he can push his way in to get a mouthful of that heavenly raw honey, well, it's going to be the Last Supper for Mr Mouse! The bees will sting him and four or five stings are enough to kill him. The bees then have a problem. They're not strong enough to carry the body of the dead mouse out of the hive, so having immobilized the mouse right there in their living room, they're stuck with their dead visitor, forever! Because of the warmth of the hive, you can imagine that this could get nasty very quickly. Luckily, propolis comes to the rescue. The bees cover the body in a complete layer of propolis, using it to literally mummify the corpse and because of its antibiotic and anti-fungal properties, the layer of propolis stops the body from contaminating the hive. The ancient Egyptians are known to have used propolis just like this in their embalming process.

## Collecting Propolis

Humans collect propolis by using special frames or a grill that replaces the inner cover of the hive. The bees don't like all the holes in the grill and proceed to "repair" these windy gaps. After a while the grill is removed and placed in a refrigerator or freezer for a while to make the propolis more brittle, then the grill can be flexed a little and the propolis cracks and falls off. You can also just scrape it off.

## What do Humans use Propolis For?

Propolis, like other bee products, has been used by mankind since ancient times. The Egyptians used it for healing. Aristotle recommended it for treating wounds, and Roman Centurions carried it in their first-aid kits for the same purpose. Even today it is used in Africa, as it always has been, as a medicine and an adhesive. It is widely acknowledged that propolis can kill a wide range of microorganisms such as bacteria, viruses and fungi, and is therefore an accepted treatment for wounds.

Since the mid-1980s there has been a growing revival in the use of propolis as people have turned more towards complementary medicines. The biggest importer of propolis is Japan. It may be this revival in propolis and the resultant increase in its commercial value that has prompted more research into its effects on health, and we have recently uncovered some new and interesting benefits. For example, a study by Duarte S and others in 2006 (one of many) showed that propolis could be useful in preventing tooth decay. Even more recently, scientists have started to uncover tentative evidence for some of the more dramatic claims that are made for this substance. For example, a 2009 study by M Demestre and others at the UKE (Universitaets Klinikum Eppendorf) in Hamburg, Germany, reported that propolis had been used successfully to kill certain types of human cancer cells that had been introduced into mice.

I have to say to you that despite all of this research we still have nowhere near a complete understanding of this product and its benefits. The research is of varying quality, and the conclusions about health benefits, although positive, can only be viewed as preliminary. But if you are with the Egyptians, Greeks and Romans, and you want to give bee propolis a try, please read on for some buying tips:

## Buying Propolis

Before we start, you need to know that as with other honey and bee products, propolis can cause an allergic reaction in some people – and it could be serious. So if you are concerned about this, seek the advice of your physician before you take or use propolis.

Although it is possible to chew on raw propolis, I don't recommend this at all because it can lead to an upset stomach. There is a whole range of products out there specially designed to give you the benefits of propolis without you having to get down and dirty with the raw material! Here is a selection:

**Liquid Extract** – this usually comes in a bottle with a dropper and can be used on cuts, ear infections and as a mouth rinse.

**Capsules** – these contain a dose of propolis extract and are probably the closest you should get to taking the raw thing.

**Toothpaste** – packaged in a tube just like regular toothpaste, this is a natural alternative to fluoride-based toothpastes.

**Throat sprays** – these often combine other herbal extracts with propolis and are used as an alternative treatment for sore throats.

**Lip balm** – this takes advantage of the healing properties of propolis for cracked and dry lips.

**Lozenges** – these are often a mix of honey and propolis and are used for their possible antibacterial properties – and because they taste good!

Please remember what I said about possible allergic reaction, and please only buy the above products from established, reputable retailers. As with other honey and bee products, there are a lot of sharks out there and you need to be as sure as you can that you are getting the real thing and not a worthless cheap imitation.

Thanks for reading.

Michael Birt