

# Products of the Hive

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## Honey Bees are AMAZING!

- Bees collect water, nectar, pollen, and plant or tree resins and gums
- Bees produce honey, wax, royal jelly, propolis, bee venom
- Most beekeepers already know the potential nutritional benefits of consuming honey, pollen, and royal jelly.
- Let's focus on the 2 main products we can make things with:  
  
WAX and PROPOLIS

## What is BEESWAX? Where does it come from?

- It's completely natural, being that it is actually formed by the worker bees (all females) which secrete it through 8 wax-producing mirror glands on the inner sides of their abdomen. These mirror glands are the reason for the honeycomb shape.
- Interestingly enough, the comb actually begins colorless but as more and more pollen is brought to the comb, it changes to a yellow and sometimes brown color which is what we are more familiar with.
- Honeybees use these combs to raise their young in where they fill it with honey and pollen to feed the young. Then these combs are capped for storage.
- When bees are creating wax, they need to consume 8 times more honey.
- Apart from the bees using beeswax to build the foundations to their hives, people have used beeswax for many, many years.
- You can buy beeswax in solid pieces or in pellets. But white beeswax has typically been bleached and there is even a beeswax called "beeswax absolute," which basically means the beeswax has been combined with alcohol.
- Beeswax has anti-inflammatory, antibacterial, anti-allergenic, and germicidal antioxidant properties which makes it absolutely wonderful for wound healing. Beeswax is also known for locking in moisture, protecting skin from environmental factors and fostering skin cells.



## Spring is Honey Harvest Time ☺



Where does a beekeeper get wax from?



Top Bar  
Hives  
have  
LOTS of  
WAX  
😊



Making a Solar Wax Melter

- One of the reasons I enjoy my top bar hives so much is that after I extract the honey, I typically have a little beeswax comb left over for small projects like making homemade lip balms or lotion bars. Making your own solar wax melter using a few items you probably have around the house is very simple.



## Items Needed

- **Styrofoam box or cooler** (the oven)
- **Aluminum foil** (heat absorbing material)
- **Scissors** (to cut the foil to size)



## More items...

- **A paper towel** (to filter the wax and remove any bee waste)
- **1 cup of water** (to put in bottom of bowl to catch and float the fresh melted wax)
- **Clothespins or binder clips** (to hold the paper towel securely to bowl)
- **A small glass bowl with about an inch of water in the bottom** (to catch the melted wax)



## The rest of the supplies

- **A piece of glass or an old window** (to reflect the sun's rays and keep heat inside the box)
- **Beeswax combs** (to put onto the paper towel for melting)



Step 1: Cut the aluminum foil to fit in the cooler, be sure to make it long enough to cover the inside walls and overlap at the top with a little extra. This may take 2 or 3 pieces of foil to cover the inside.

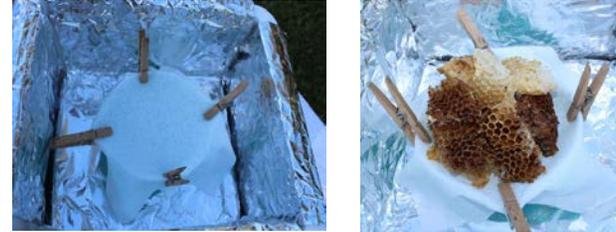


Step 2: Place the bowl in center of box and fill the bottom inch with water.



Step 3: Lay the dry paper towel over the top of the bowl, don't let it fall in or get wet. Put a clothespin on each of four sides to prevent the paper towel from slipping into the bowl of water.

Step 4: Place your wax comb pieces, centered, on top of the paper towel.



Step 5: Cover with the glass or an old window pane.

Step 6: Place the solar melter with everything inside into a sunny spot in the yard and wait...

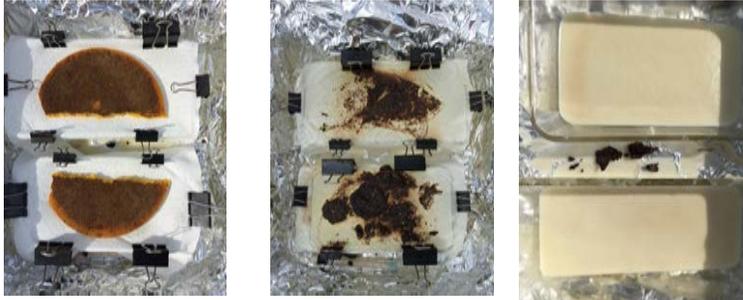


## The Results

- The paper towel will filter the bee waste out of the used wax and let the fresh clean wax melt through it and drop onto the water below where it can be easily collected when the process is complete!



### How To Melt Wax - Demo & Photos



### Sludge left on paper towel after rendering wax



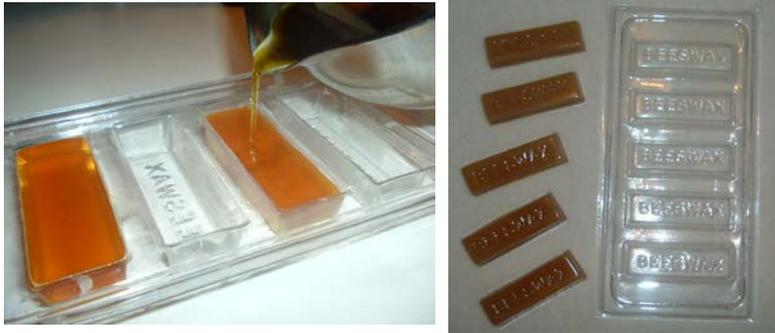
### Photos of Wax (after melting in crock pot), but before the solar melter.



A Hunk of Melted Wax Floating on Water  
You can use the wax as is, or melt it down in the microwave or in a double boiler, then pour into beeswax molds to keep or to sell.



## Pouring Beeswax in 1 oz Molds – Easy size



## Everyday Uses for Beeswax

- Beeswax is used in many skin care products because it provides a protection against irritants while still allowing the skin to breathe. It also offers anti-inflammatory, antibacterial and antiviral benefits making it helpful in treating skin irritation. But did you know that beeswax has a multitude of OTHER uses besides cosmetic? This versatile by-product of honey production has several uses around the home as well.
- Rust prevention - Coat things like hand tools, cast iron pieces and shovels to prevent them from rusting out. You can even rub beeswax on the wooden handle of your shovel to help protect against wear and tear.
- Cheese waxing - If you produce your own cheese, beeswax is the best natural cover for cheeses. If the cheese is wet, you will need to let it dry before applying the hot wax. This is to ensure a proper seal because wax will not adhere to wet surfaces. Beeswax works well for sealing the because it has a low melting point.
- Waxed thread is often used in handmade crafts such as hand-sewn leather goods and making jewelry. The wax on the thread provides lubrication that can make sewing easier. Plain thread can be rubbed against a cube of bee's wax, coating the thread in the wax.
- Once you coat your nails and screws with beeswax, they do not splinter the wood while you hammer them in.
- Wood Lubricant - Rub beeswax on sliding glass doors, windows or drawers that tend to stick to restore smooth movement. Beeswax is also a fantastic lubricant for oiling very old furniture joints.
- Beeswax Crayons - There are many different variations for beeswax crayons, but most use equal weight amounts of beeswax and white bar soap. Beeswax crayons tend to be harder than the soy, giving the ability to add more details to pictures.

## More uses for beeswax ...

- Envelope Seals - You can make a beeswax seal and apply it to an envelope that you are sending out. This would be great for an invitation to a wedding or baby shower.
- Waterproof Shoes/Boots - Rub the beeswax over the entire shoe. Next, use a blow dryer to melt the wax all over the shoe then let set for about 5 minutes before wearing!
- Beeswax is used as a remedy for dry hair, to help start and maintain dreadlocks and as a wax for a man's beard or mustache. Combine & heat equal parts beeswax and coconut oil. Allow to cool and set. Using small portions at a time, work it into the mustache. Comb to style.
- Grease Cookie Sheets - If you have a block of wax, you can simply rub it over your pans and use it in place of butter or oil. (Beeswax is edible so this is perfectly safe.) It works best if you warm the sheet a bit first. You can also melt the wax and apply it that way. Over time the pan will take on a permanent coat of wax, eliminating the need to grease every time.
- Candles - Beeswax candles burn brighter, remove toxins from the air and give off a sweet, warming honey aroma which gets accentuated when mixed with other essential oils. Also they don't drip wax and don't smoke, like paraffin does.
- Countertops - Keep your granite or stainless steel countertops shiny with beeswax. Rub warmed beeswax in, allow it to dry, and then wipe down to remove any excess. The polish will also help prevent staining
- Reusable Food Wraps - An alternative to plastic wrap.....make your own beeswax coated cotton material. The warmth of your hands allows you to mold the beeswax to whatever shape you want and it stays there. When refrigerated it forms a firm cover to protect your leftovers

## More uses for beeswax ...

- Modeling clay made from beeswax and plant dyes make a natural and non-toxic craft. When warmed in your hands to a soft consistency, beeswax modeling clay easily forms into shapes. To preserve your sculpted creations, let the beeswax cool and keep it away from heat.
- Care for Wooden Utensils - Make spoon (or board) butter out of mineral oil and natural beeswax. Smooth it into your spoons, spatulas, boards and bowls. Let them sit for a couple of hours, then rub down with a clean cloth and return them to normal use.
- Corrosion Control - Beeswax actually prevents bronze items from getting tarnished. To guard against oxidation caused by moist air, brush on a solution of ½ pound beeswax melted in 1 quart turpentine. Buff it with a towel to create a thin, hard coat. Similarly, you can seal a copper sink by rubbing it with softened beeswax and polishing off the excess with a lint-free rag

## Making Beeswax Products

- **DIY Shoe Polish** - Restore leather boots, shoes, pocketbooks, and more with this basic shoe polish formula. Combine and heat 2 oz of oil and 1/2 oz beeswax until the beeswax is melted. Remove from the heat and stir in 1/2 to 1 tsp pigment, adding more for a darker color. Makes ½ cup, just about what you'd buy in the store. Store in a small jar.
- **Furniture Polish** - To make beeswax furniture polish melt 1 T. of grated beeswax, stir in 3 T. of coconut oil until melted. When this cools and hardens, use a clean cloth to rub it onto your wood furniture. Then using another cloth, buff the furniture until all residue is removed.
- **Easy basic Lip Balm** - 1 oz of clean beeswax, 5 oz of Almond or Olive Oil, 1 Tablespoon of Honey - 4 drops of essential oil for scent (peppermint) - best when melted slowly over double boiler. Mix in honey last. Use tins or lip balm tubes. Stir and re-stir while pouring to keep honey mixed.
- **Another Lip balm** - 1 part beeswax, 2 parts shea, cocoa, or mango butter, 2 parts coconut oil, 20 drops of essential oil.
- **Homemade Lotion Bars** - 1 cup coconut oil, 1 cup shea butter, cocoa butter, or mango butter, 1 cup beeswax. (optional: 1 teaspoon vitamin E Oil)

## Kits for Lip Balms



## Lotion Bar Recipes

- **Basic Shea Body Butter**
  - 115g | 4.05oz shea butter
  - 50g | 1.76oz olive oil
  - 12g | 0.42oz beeswax
  - 3g | 0.1oz vitamin E
  - Essential oils (grapefruit and cardamom are nice)
  - Melt the fats and vitamin E together over medium-low heat. Stir in the essential oils, and then pour into tins. Move to the fridge to set up, as a fast chilling time will keep the shea butter from going grainy.
- **Perfect Body Butter Bars**
  - 20g | 0.71oz [cocoa butter](#)
  - 30g | 1.05oz [virgin coconut oil](#)
  - 20g | 0.71oz [beeswax](#)
  - Combine the three ingredients together in a small saucepan and melt over medium heat. Pour into small molds (I like 1/4 or 1/3 cup measuring cups) and let set. You should be able to just tap them out of the mold when they've set as the edges of the bar will pull away from the side of the mold. If not, a quick dip of the mold in some hot water should have them out in a jiffy.

## Lip Balm Recipes

- | Coconut Oil Lip Balm tubes  | Makes 20 lip balm tubes | Cocoa Butter Lip Balm tubes  | Makes 20-25 lip balm tubes |
|---|-------------------------|--|----------------------------|
| <ul style="list-style-type: none"> <li>• 1 oz beeswax</li> <li>• 1 oz coconut oil</li> <li>• 1 Oz sweet almond oil</li> <li>• 1/3 oz castor oil</li> <li>• 1-3 drops of vitamin E oil</li> <li>• 6-10 drops of favorite essential oil (optional)</li> </ul>   |                         | <ul style="list-style-type: none"> <li>• 1 oz beeswax</li> <li>• 1 oz cocoa butter</li> <li>• 2 oz sunflower oil (or olive oil)</li> <li>• 6 drops of vitamin E oil</li> <li>• 12 drops of favorite essential oil (optional)</li> </ul>  |                            |
| <ul style="list-style-type: none"> <li>• Melt the beeswax in a double boiler over low heat.</li> <li>• Add the coconut, almond and castor oils, stirring until the mixture is fully liquid.</li> <li>• Remove from heat, add the vitamin E and essential oils, stir until fully combined, then pour into lip balm tubes.</li> <li>• Allow to cool completely before placing caps onto the lip balm containers.</li> </ul> |                         | <ul style="list-style-type: none"> <li>• Melt the beeswax in a double boiler over low heat.</li> <li>• Add the cocoa butter, stirring until the mixture is fully liquid.</li> <li>• Add the sunflower oil, stirring until the mixture is fully liquid.</li> <li>• Remove from heat, add the vitamin E and essential oils, stir until fully combined, then pour into lip balm tubes.</li> <li>• Allow to cool completely before placing caps onto the lip balm containers.</li> </ul> |                            |

## Propolis



## Propolis collection



## Constituents of propolis

- The constituents of propolis depend upon the plants on which the bees have been foraging, and it is therefore difficult to state a standard definition for propolis, although some countries have endeavoured to do this. Propolis commonly contains over 300 constituents: major substances present in propolis include, flavonoids, organic acids and aldehydes, various alcohols and other organic molecules, minerals, sterols and steroids, sugars, and amino acids. These constituents mean that propolis does not dissolve in water: solvents for propolis include ethanol and other alcohols and organic solvents.

Table 6. Activities of known (and related) compounds in propolis<sup>1</sup>

Activity	Active component(s)	References <sup>2</sup>
Constituents of Propolis from The Hive and the Honey Bee	pinocembrin, galangin	Vilanova <i>et al.</i> , 1970
	caffeic acid, ferulic acid	
Anti-bacterial	pinocembrin	Metzner <i>et al.</i> , 1975, 1977
Anti-fungal	3-acetyl pinobanksin caffeic acid, p-coumaric acid benzyl ester sakuranetin, pterostilbene	Schneidewind <i>et al.</i> , 1975
Anti-mold	pinocembrin	Miyakado <i>et al.</i> , 1976
Anti-viral	caffeic acid, luteolin, quercetin	König and Dustmann, 1985
Tumor cytotoxicity or inhibition	caffeic acid phenethyl ester (methyl caffeate, methyl ferulate)	Grunberger <i>et al.</i> , 1988 Inayama <i>et al.</i> , 1984
Local anesthetic	pinocembrin, pinostrobin, caffeic esters	Paintz and Metzner, 1979
Anti-inflammatory	caffeic acid acacetin	Bankova <i>et al.</i> , 1983
Spasmolytic	quercetin, kaempferide, pectolinarigenin	
Anti-diabetic (un-confirmed)	pterostilbene	
Healing of gastric ulcers	(luteolin, apigenin)	
Helping pulmonary insufficiency	(eriodictyol)	Aviadi <i>et al.</i> , 1974
Strengthening capillaries	quercetin (3,4'-dihydroxyflavonoids) (flavan-3-ols)	Budavari, 1989 Roger, 1988

<sup>1</sup> Compounds in parentheses are similar to those in propolis.  
<sup>2</sup> General source of information is Ghisalberti (1979) with other authors as noted.

## Propolis

- Use of propolis by humans
- Propolis has antiseptic and anesthetic properties and is commonly used as an ingredient in medicines, toothpastes, oral sprays and chewing gums, and in shampoos, soap, skin ointments and cosmetics. It is most commonly sold as a tincture of propolis made by dissolving it in alcohol.
- In forest societies, propolis is still used for many purposes. Kikuyu beekeepers in Kenya carry with them a lump of propolis to rub inside empty hives to make them attractive to a colony in search of a nesting place. Propolis is used as part of traditional medicines, and also as an effective glue to mend or seal containers (wood, metal or clay), and to seal up knots in wood.
- Propolis has long been used for making wood varnishes. One famous use was as a varnish for violins made by Stradivarius, in Cremona in Northern Italy. The propolis in this region is gathered by bees from poplar trees.

## Harvesting propolis

- Propolis can be scraped from the hive and collected until there is sufficient volume to sell. For the commercial harvest of propolis from *Apis mellifera* kept in frame hives, a plastic sheet with multiple small slots (each less than six millimetres) is placed in the hive. The bees seal these gaps with propolis. The sheet is subsequently removed from the hive. If placed in a freezer, when cold enough it is easy to flex the sheet and release the many small pieces of propolis.
- Propolis is usually kept in dark containers, protected from light and heat. Propolis can be lyophilised (freeze-dried) and this procedure maintains the physical and chemical properties. A method widely used in Eastern Europe is to dissolve propolis in ethyl alcohol. This extract is then dissolved in organic amine solution. The resulting solution is then filtered and the wax residues removed. It is then soluble in aqueous solution and can be freeze-dried.

## Propolis Recipes

### Calendula Sunburn Salve (with Propolis)

#### Ingredients:

- 2 ounces dried calendula petals
- 4 ounces extra virgin olive oil
- 1 ounce beeswax
- 20 drops propolis infused olive oil or tee tree oil if preferred

#### Propolis Infused Oil

- 3 oz. or 10 grams propolis (about 1 TBS)
- 6.7 fl. oz. or 200 ml olive oil (any healthy vegetable oil is okay to use)
- (We made a big batch, so we used 2.25 oz. (7 1/2 TBS) raw propolis and 50 fl. oz. olive oil)

#### Heated Method

Mix the propolis and olive oil together in the top of a double boiler. (Small sauce pot in a larger pot partly filled with water). This helps control the temperature of the oil, which you do not want to get too hot because this would destroy the beneficial properties of the propolis. Use a candy thermometer to monitor the temperature and heat the oil to no higher than 122 degrees F. Stir and heat for about 10 minutes. (Or longer if you wish). The propolis will not all dissolve.

Strain this mixture through cheesecloth (coarser, goes faster, but might require a second straining) or a paper coffee filter (finer, goes slower, but you end up with a cleaner oil). The propolis that remains in the filter can be used again to make more oil. (Prevent it for another time). Store it in a sealed jar in a dark place.

#### 2 Week Unheated Method

Mix the same quantities/ratio of oil and propolis as above in a container with a sealing lid. We use canning jars. Shake up and store in a dark place. Shake 2-3 times a day, for 2 weeks. Then proceed as above, to strain.

A great tip to know is that propolis dissolves better in alcohol. I hope that this was helpful and that you have as much fun as I did learning about propolis. It's great to be able to use one more thing that this amazing insect, the honey bee, gives to us.

### Websites for supplies, oils, aromatherapy, etc

- <http://www.lotioncrafter.com>
- <http://www.bulkapothecary.com>
- <http://www.candlewic.com>
- <https://www.candlescience.com>
- <http://www.BrambleBerry.com>
- <https://www.mountainroseherbs.com>
- <http://www.fpi-america.com>
- <https://www.starwest-botanicals.com>
- <https://www.wholesalesuppliesplus.com>
- <https://www.wholesalesuppliesplus.com/PDFS/OilsAndButters.pdf> - pdf on properties of oils spreadsheet

• QUESTIONS???

### Bee Venom

- Venom is harvested from honeybees for use in therapy against bee sting allergy, and for use in apitherapy, especially for treatment of rheumatism and arthritis. Venom is harvested by submitting bees to electric fields: when they feel the electric shock bees sting into metal gauze, behind which is a glass sheet. This is left in place in the hive for a few hours, after which dried venom is scraped from the glass sheet. It is possible to harvest one gram of venom (equivalent to about 10,000 bee stings).
- Most apitherapy practitioners would prefer to use live bees to administer stings and may argue that dried venom has lost volatile, active ingredients.



### Apitherapy with Bee Venom

- Bee venom is most used in Russia, America, Japan, New Zealand and eastern countries where apitherapy is irreplaceable, as we can see how much products they offering with bee venom.
- Research shows that bee venom affects on many diseases and on some have proven complete healing. It is used in the treatment of rheumatic diseases, multiple sclerosis, rheumatic fever, high blood pressure, sciatica, psoriasis, hematomas, hemorrhoids, prostate, for various skin diseases, burns, and the Russian Institute says that cures cancer and destroy the AIDS virus. Bee venom is most used in Russia, America, Japan, New Zealand and eastern countries where apitherapy is irreplaceable, as we can see how much products they offering with bee venom.