



"Tears of the trees" – this sonorous name was used to describe propolis by Aristotle (350 BC).

Propolis

Collect, Process, and transform Propolis
Into a product of the hive



15+ year hobbyist beekeeper – 15 to 20 hives

INTRODUCTION – Kevin Inglin

EAS Master Beekeeper

Past President – NWNJBA

Day Job > Medical Affairs IT, Bristol Myers Squibb

Beekeeping Podcaster

Managed Mentoring Program for Getting Started in Beekeeping

Our Home Yard

WHAT is PROPOLIS?

Where Does it Come From?



PROPOLIS and BEES

How do bees Collect and Use Propolis



PROPOLIS and PEOPLE

How Humans have learned to Leverage the Power of Propolis



COLLECTING PROPOLIS

Methods and Reasons for Collecting Propolis



PROCESSING PROPOLIS

Creating Tinctures, salves, and other products with Propolis



Links and Resources

Several Links for REFERENCE and to continue your Journey



WHAT is PROPOLIS?

Where Does it Come From?

Propolis Origins, Makeup

❑ Propolis Resins

- *Bees retrieve propolis from the **exudate** of tree resins that they collect from leaf buds and tree sap.*
- *Workers carry propolis in their pollen baskets.*

❑ Generally, the end composition:

- *~50% resins*
- *30% waxes*
- *10% essential oils*
- *5% pollen*
- *and 5% organic substances and minerals*

Have you ever bruised a twig and noticed the oozing liquids that emerge to heal the plant?

Exudate: An exudate is a fluid emitted by an organism through pores or a wound, a process known as exuding or exudation

❑ Plant exudates include saps, gums, latex, and resins.

Common Sources of Propolis

Propolis collection depends upon your local region as to what resins the bees can collect

Some of the common trees and plant resins for Propolis

- ❑ Poplar (*Populus* sp. L)
- ❑ Ash (*Fraxinus* sp.)
- ❑ Willow (*Salix* sp.)
- ❑ Birch (*Betula verrucose*)
- ❑ Chestnut (*Castanea sativa*)
- ❑ Pine (*Pinus* sp.)
- ❑ Beech Trees (*Fagus* spp.)
- ❑ Bee-Balms (*Monaras* spp.)
- ❑ Rosemary (*Rosmarinus offinalis*)
- ❑ Plum (*Prunus domestica* L.)
- ❑ Redwood (*Sequoia*)
- ❑ Elm (*Ulmus* sp.)
- ❑ Oak (*Quercus* sp.)
- ❑ Alder (*Alnus glutinosa*)

Honeybees collecting propolis resins from a seam in a tree trunk



Propolis Diversity

□ Composition & Diversity is Variable

The proportions of substances within propolis is variable

- They depend on the **place** and **time** propolis is obtained
- They depend upon the type of **plants** accessible, and the constituents within vary across the **seasons**, and even from **year to year**

Propolis can have a diverse range of bioactive compounds

- This translates to a **varied potential of health benefits**

Augmented by Bees: Propolis as it exists in the hive interior

- It contains a varied mix of the collected propolis resins, beeswax, and the honeybees' natural enzymes

Physical Properties

□ Composition is Variable

- *Chemically, propolis is a lipophilic material*
- *It is often soft and flexible in warm conditions; and hard and fragile when cold. It becomes quite durable and resistant to degradation*
- *Its color ranges from yellow, to green, to dark brown, to even black and other shades depending on the origin of the resins*
 - The color, odor, medicinal attributes, and other properties are dependent upon the environment in which they are sourced and maintained by the bees
 - It has a distinct and pleasant resinous aroma due to its plant-derived origins.

Terminology

Lipophilic: A substance that is attracted to fat. Translated as “fat-Loving”.



Not Just Bees

Other insects produce 'propolis-like' substances

Ants

- Some **ants** use *resinous materials*
 - They reinforce their nests
 - They create barriers against predators and pathogens.

Termites

- *Termites produce a material known as "termite cement" (aka carton)*
 - **Carton** is a mixture of soil, chewed wood, excrement, and their own saliva.
 - This material is used to build and repair their nests and serves a purpose **like that of propolis** in protecting the colony.
 - Termite saliva plays a crucial role in the construction process. It serves as a binding agent that helps the other components stick together.

PROPOLIS and BEES

How do bees Collect and Use Propolis



Propolis Foragers

□ Collection

- *Bees will collect the resins by scraping it off in bits with their mandibles*
 - They will chew it to a taffy like substance and deposit it on their corbiculae (pollen baskets)
- *Deposits Dislodged with Help*
 - The forager will move to the interior of the hive where a worker will help them dislodge and deposit
 - Workers groom the forager and mix their enzymes into the propolis as they are making it fit for use



Image credit: <https://www.miel-paris.com/>

Some Common Uses of Propolis by Bees

- Use as a sealant within the interior of the Hive
 - *In the context of sealing things, It plays a role in hive operations by maintaining the temperature and humidity*



Some Common Uses of Propolis by Bees

□ Surface Coatings of the Entrance and Interior

- *Thwart microbes before they get into the interior and as foragers walk around*
- *Propolis has been shown to kill *Bacillus* larvae; the cause of American Foul Brood*



Some Common Uses of Propolis by Bees

□ Binder, Reinforcement and more

- *Serves to anchor comb to woodenware, Supports comb structures through reinforcement*
- *Deposited on cell rims to increase the resonance of wax comb vibrations for bees dancing on the comb*

□ Negating entry points for ants

- *The sticky and resinous nature of propolis makes it difficult for ants to pass through.*

Some Common Uses of Propolis by Bees

□ Hive Beetle Control

- *Bees will build barriers of propolis and wax to make a corral to keep hive beetles in a sequestered space*

□ Encapsulation Envelopes

- *Bees coat and encapsulate decomposing invaders killed by bees*
- *This negates rotting tissue from spreading unwanted microbes into the hive interior*

Western and Eastern uses vary

□ Mellifera and Ceranae use of propolis varies

- *The western honeybee is more prone to use propolis in varied ways*
 - The Eastern honeybee (*Apis Ceranae*) does not collect propolis to seal cracks and holes in their hives,
 - They also do not use it to defend against pathogens like *Apis Mellifera*.
- *Stingless bees (*Apis Meliponine*) are said to collect sticky residues that are akin to propolis*
 - One tactic they use is to create rings around the colony to prevent ants

Do Bees Dance for Propolis?

- Jury is out... Mostly the consensus is *No*
 - *The decision to collect and use propolis is typically made by worker bees within the hive*
 - It is based on their assessment of the hive's needs and environmental conditions
 - There is no evidence that there is a dance language that communicates locations of propolis
 - There are some anecdotal instances where some claim that bees would dance for propolis,
 - It is more likely that like other jobs in the colony (*water collectors, undertakers, wax building bees*) propolis collection is just one of the myriad jobs that bees undertake

Antimicrobial and Antifungal:

- ❑ Bees deposit propolis on hive surfaces
 - *Usage creates a barrier that helps prevent the growth of bacteria, fungi, and other microorganisms.*

The antimicrobial properties can penetrate the cell walls of bacteria, fungi, and other microorganisms.

This makes it harder for pathogens to establish themselves and grow within the hive.

Antimicrobial and Antifungal:

- ❑ Bees deposit propolis on hive surfaces
 - *Usage creates a barrier that helps prevent the growth of bacteria, fungi, and other microorganisms.*

The action is particularly effective against a wide range of microbes.

This leads to leakage of a cell contents and ultimately cell death.

Antimicrobial and Antifungal:

- ❑ Bees deposit propolis on hive surfaces
 - *Usage creates a barrier that helps prevent the growth of bacteria, fungi, and other microorganisms.*

The complex mixture of bioactive compounds in propolis makes it challenging for microorganisms to develop resistance mechanisms.

Antimicrobial and Antifungal:

- ❑ Bees deposit propolis on hive surfaces
 - *Usage creates a barrier that helps prevent the growth of bacteria, fungi, and other microorganisms.*

These properties contribute to the overall hygiene and health of the bee colony.

Some compounds in propolis also stimulate the immune system of honeybees and potentially help them to become more capable of fighting off infections.

Propolis Abundance

Internal and External Influences
On Propolis Volumes in the Hive

Three Key Factors

Bee Genetics

Bee Species

Environment

Other Influences

Hive Design

Seasonal
Changes

Colony Health
and Population

Colony Hygiene,
Traits, Stress

Queen Health
and Mating

PROPOLIS and PEOPLE

How Humans have learned to Leverage the Power of Propolis

▸ Aristotle *and* PROPOLIS

- The term is credited to Greek philosopher and naturalist Aristotle
 - *It is attributed from his work "Historia Animalium" (History of Animals), which was written around 350 B.C.*
 - *The word "propolis" is derived from the Greek words "pro" (meaning "before") and "polis" (meaning "city" or "hive"), essentially referring to the "substance before the hive."*
 - The term "propolis" has been used to describe this bee-collected substance ever since

Kevin Moment: **PRO-PO-lis, or PROP-Ah-lis?**

- **Is it PRO?** (akin to short for Professional)
- **Or is it PROP?** (akin to a propeller on a boat?)

Given what Aristotle named it,

PRO is probably the more correct form but.....

- *It is what you call it because both are mutually acceptable from what I've seen*

History of Propolis and Humans

□ The use of Bee Propolis for wellness of in humans' dates back centuries.

● *Greeks, Romans, Persians, Egyptians, and others*

- The Greeks and Romans already knew that propolis would heal skin abscesses and through the centuries its use in medicine has received varying attention.
- The ancient Egyptians learned from the bees to use it for embalming and mummification.
- Africans knew about the benefits of propolis, and it is still used there today

The use of propolis dates back at least to 300 B.C,



Supports the body's natural defenses against:

- Upper respiratory tract infections
- Skin Infections
- Gout
- Sore Throats and/or other Mouth Infections
- Liver Health
- Bone Health
- Pneumonia
- Colitis arthritis
- Sclerosis
- Circulation Deficiencies
- Warts
- Healing of Minor Wounds
- Controlling Blood Sugar Levels
- and several more.

Medicinal Applications

- Cardiovascular
- Blood systems
- Respiratory infections
- Liver Health
- Treatment of certain Cancers
- Immune system Disorders
- Digestive Tract Disorders
 - Ulcers and infections,
- Dental
- Dermatology
 - Wound care
 - Infections
 - Eczema
 - Burns
 - Lesions, etc.

Oral Dosing: Propolis Powders/Capsules

□ Dosing Amounts

- *No recommended daily dose of propolis exists*
 - There are not enough human studies to determine how much propolis should be taken to support health conditions.
- *400-500 mg tablets daily*
 - Propolis has most often been used by adults in doses of 400-500 mg by mouth daily for up to 13 months. [WebMD]



Propolis and Humans

□ Beware of Unintended Consequences

- *Generally Safe, but use must be monitored*
- **Use with Care:** *Propolis is generally safe when used appropriately for humans, but there are possible side effects to consider*
 - **Allergic Reactions:** Especially in people who are allergic to other bee products.
 - One should take care when taking it orally and/or placing it on the skin if know to have allergies to bees. Contact can lead to irritation and ulcers.
 - **Bleeding Disorders:**
 - Propolis can slow blood clotting, and those with bleeding disorders should use care.

COLLECTING PROPOLIS

Methods and Reasons for Collecting Propolis



Several Ways to Collect

□ Collect as you Go: Small Bits at a Time

- *Scraping propolis of hive surfaces with a hive tool*
 - Small pieces at a time; indiscriminatory, over a period
 - Collected from the inner cover, box edges, frame rests, frame edges and insides of boxes
 - This has one benefit in that propolis collected may be more diverse in makeup
 - Store in a zip-top bag kept in your kit. Leave in cool dark place

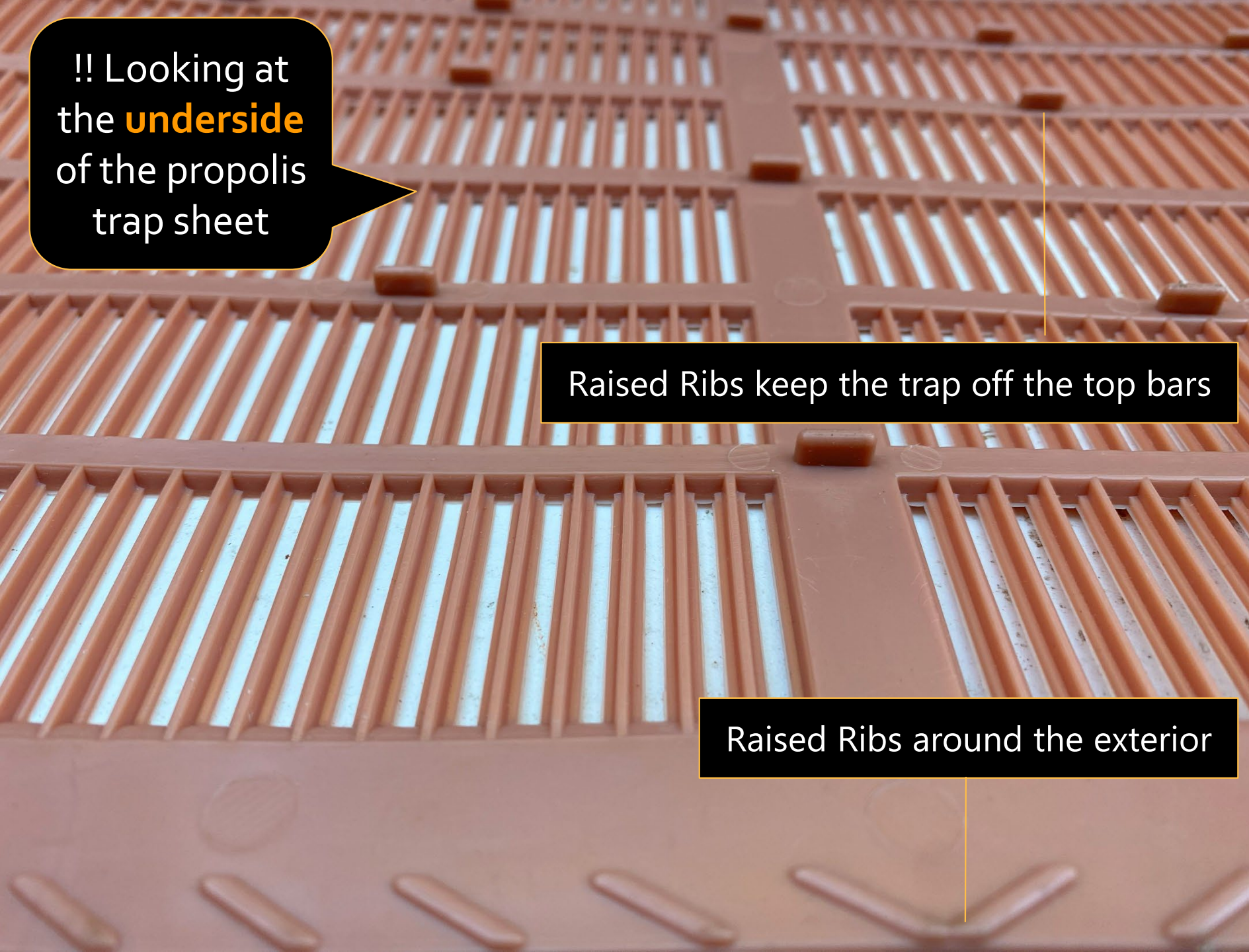
Propolis Trap Equipment

- *Deploy Propolis Traps*
 - A trap is affixed at a Periodic Times of the Year
 - It is typically harvested over a period of a single season
 - It can be collected over different parts of the yar
 - Spring Nectar Flow
 - Summer Dearth
 - Fall to Winter Period
 - It is an equivalent of collecting it over a season of hive inspections

Timing: Collect in Fall

Some markers to consider


- *When the fall flow is underway with bees actively foraging – Winter Onset is in play*
 - It has to be warm enough for the bees to work with it, yet cold at night so they will want to use it to apply it where they require in the hives normally
 - In and around the start of active yellowjackets is another marker
- *While fall is more traditional, spring forage is also viable*



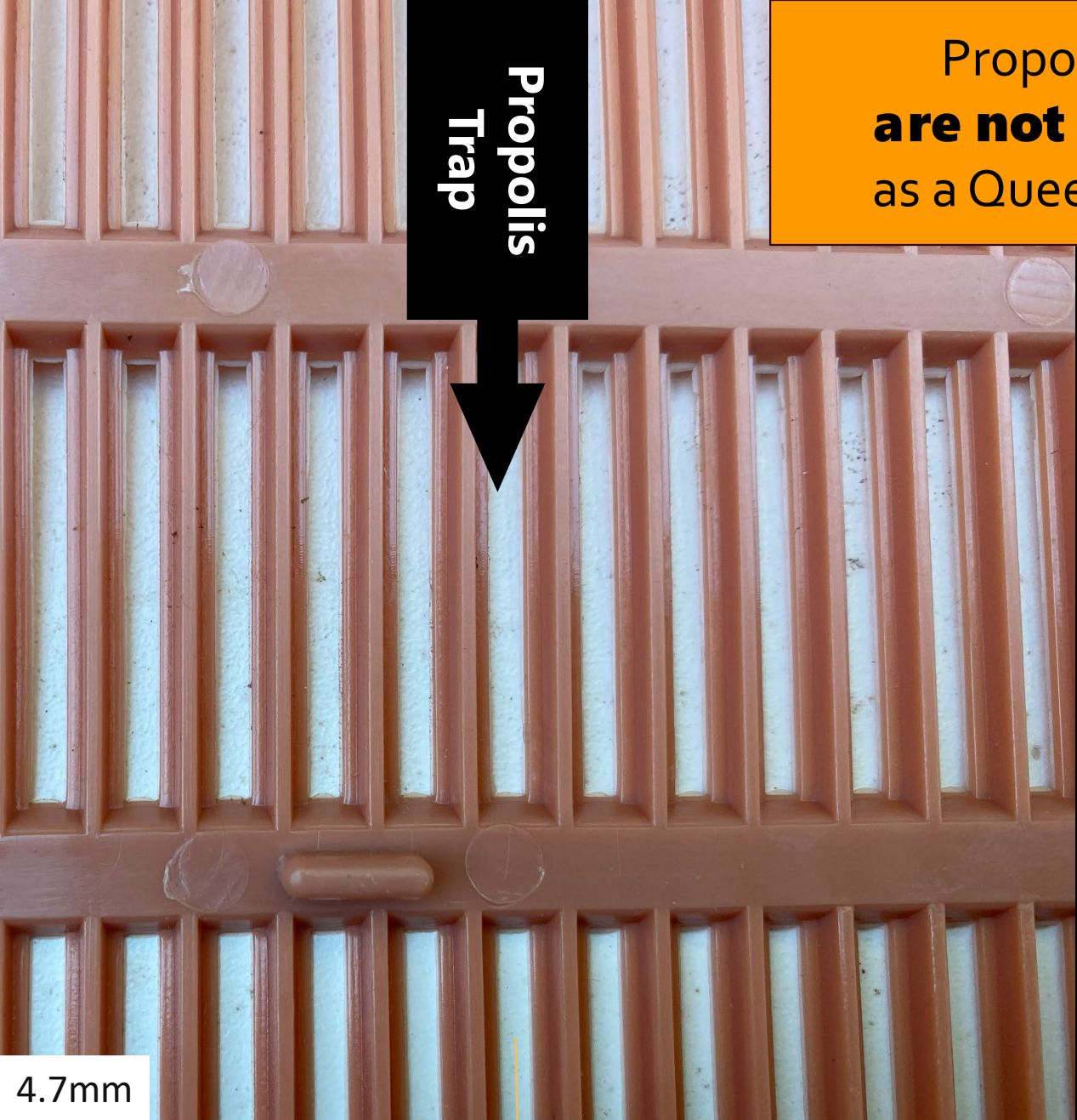
!! Looking at the **underside** of the propolis trap sheet

Raised Ribs keep the trap off the top bars

Raised Ribs around the exterior



The top side is smooth features a smooth and flat surface



Propolis Trap



4.7mm

3/16th-inch: No Bees Can Pass Through the gap

Propolis Traps **are not the same** as a Queen Excluder



Queen Excluder



3.1mm

1/8th-inch: Workers Can Pass Through

Collection of Propolis During Equipment Maintenance

A Bountiful Opportunity

- *Collect during Equipment Maintenance*
 - A typically end of the season clean up of equipment the boxes for use in the following year often yields an amount of propolis.
 - Scrapings may contain propolis from multiple seasons
 - It is unknown how age, even if protected by the bees in their climate-controlled atmosphere, affects propolis quality.
 - This might provide a bounty, but more research is required to determine if the antimicrobial properties of propolis could diminish over time.

It might be best for extracts to seek a fresher collection process



Placed flat
side up
over the
top box

Placement

Traps are placed under the telescoping cover, in-lieu of an inner cover.

Prop up the outer cover to let light in

Light showing through will motivate the bees to seal off the gaps, preventing light and air from coming in.

Note:
This particular trap has a defect.
Oddly, **one section is reversed...**

Weight on Roof

Note: This happens to be a polystyrene hive!

Strap keeps roof from blowing away

Propolis Trap sits flat over the box, sealing off the top of the hive

Shims let air and light in

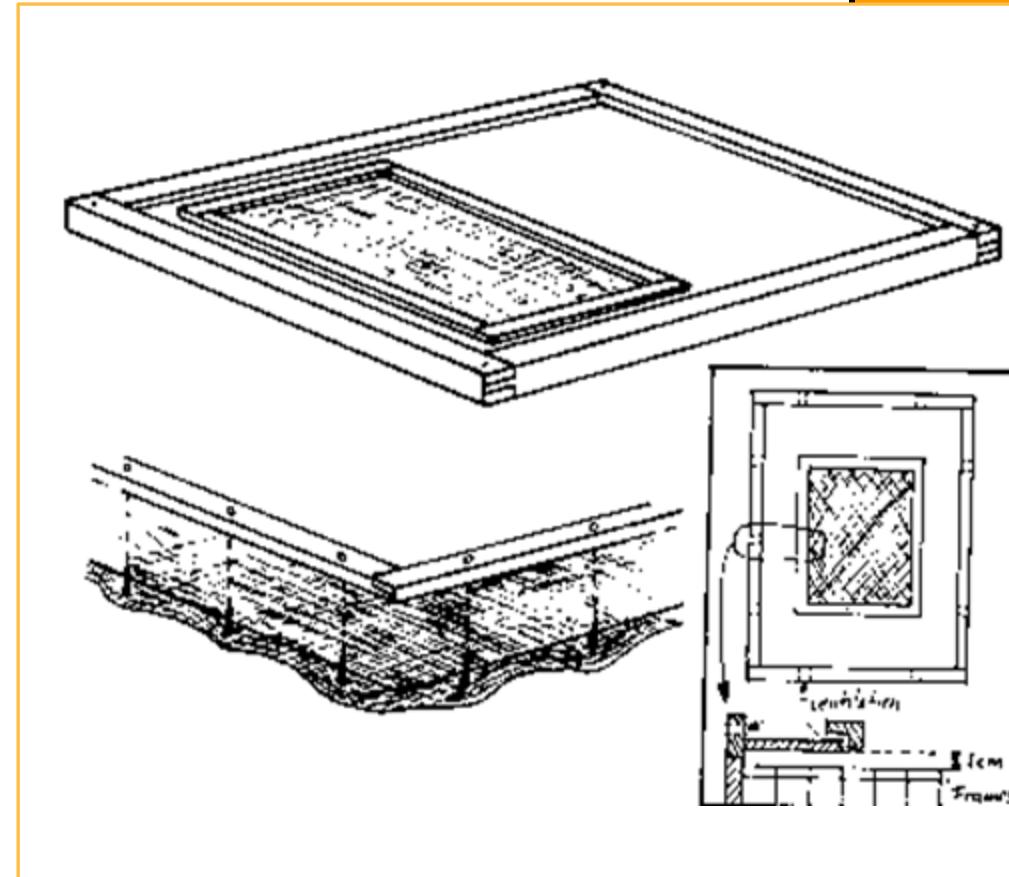


Some Fine Points

- **Light**, and in particular, **air circulation are important** to stimulate propolis deposits.
 - *Traps placed on top of hives needs to setup to allow for air circulation and to allow in some light*
 - **Do not lay the trap on the top bars.** The bees will affix it with wax.
 - Use stand-offs to create bee space between the bottom of the trap and the top bars
 - With traditional traps bees do not mix as much wax with the propolis and no contamination occurs during harvesting.
 - Trap harvesting is also faster and may be more productive.

Alternatives Abound

- ❑ One such alternative propolis trap made from an altered inner cover and nylon, fly or mosquito screen.
 - *The **screen panel** is removable and can be quickly replaced with a new one during harvest.*
 - *Some simply lay some sticks across the top bars and place a nylon screen over the top bars instead of going through this complication*



There are several more alternatives to consider for collecting propolis if you search the web

Freeze the Trap or a Chunk of Propolis

- Place the trap in a freezer; *Then twist*
 - *Frozen propolis turns hard and brittle*
 - *Process the propolis by scraping and twisting*
 - Some place the trap in a plastic bag before twisting, using the bag to catch any propolis that pops off.
 - The flexibility and durability of the plastic trap material (or alternative substrates if used) allow you to separate the frozen propolis from the collection gaps
 - ***Alternatively;*** *you can place a hunk of propolis in the freezer*
 - Place the chunk in a zip top bag and smash it with a hammer to break it up

Colony Strength + Population Advantages

□ Queens and Hive Population Improve Success

- *Well mated queens play a role*
 - When you have a well mated queen, that means more **diversity** of bees to do more jobs in the hive
- *Large Workforce is Optimal*
 - Coupled with diversity; when the workforce is large:
 - There are more bees to do particular jobs, including **propolis foraging**
 - When a nectar flow kicks in, bees can be quite productive in foraging

For Bees: Encouraging Propolis Envelope

□ Marla Spivak / Mike Simone-Finstrom Work

- *Different attempts to get bees to deposit propolis on the interior surfaces*

10 Frame Medium



Box with Grooves



Box with Propolis Traps



Box with Rough Interior

Prepping an Interior with Propolis

□ Additional Tactics To Consider

- *Staining New Wood*

- Take a prepared extract and using a brush or cloth cover new woodenware with propolis much like applying a stain

- *Crayon Approach*

- Cobble together a wad of propolis into a large, thick puck.
- Place it in the freezer and allow it to harden
- Once it is stiff in texture, use it like a crayon to scribble on new woodenware prior to deployment

Storage During & Post Collection

□ Stability of Collected Propolis

- *Propolis is a rather stable and durable substance*
 - It does not contain the nutrients or moisture conducive for microorganisms to grow.
 - It also has natural antioxidant and antimicrobial properties that help preserve it.
 - **It will however spoil over time;** especially if not cared for
- *Items that will degrade quality and potency*
 - Exposure to heat, light, air, or moisture; these cause oxidation or crystallization
 - Moisture can lead to mold problems: Leave it in common air with light air movement

PROCESSING PROPOLIS

Creating Tinctures, salves, and other products with Propolis

Propolis Forms for Use

❑ In its natural, collected form

- *Pinch it off, add it to a band-aid, and use it directly in collected form*

❑ Freeze, Crush, Pulverize > Powder

- *Freeze it, break it up, then grind it to a powder for use*
 - Use a powder stir in, add to substrates (carriers) or use in capsule form

❑ Tincture

- *Extract the essence with a liquid (normally via grain alcohol)*

Requires
Additional
Processing

Typical Steps in the Preparation Processes

- ❑ Collect and Clean
- ❑ Freeze
- ❑ Grate / Break Up (as required)
- ❑ Pulverize to Powder
- ❑ Extract, Filter, and Bottle

Collect and Prep (for Freezing)

- ❑ **Confirm the propolis to be used is fresh**
 - *Check for some signs of deterioration;*
 - Signs include changes in color, texture, smell, or taste.
 - Most beekeepers are familiar with the consistency and appearance of propolis. If your propolis product looks and smells normal, it is probably safe to use.
 - ❑ If you notice any of the degradation signs, consider sourcing fresh propolis

- ❑ **Stage the propolis for processing**
 - *Take fresh collected propolis; preferably when warm, break it up*
 - Break up the collected propolis into crumbs or small shards

Clean from Foreign Detritus

Definition

Detritus: waste or debris of any kind:

□ Propolis Cleansing

- *Propolis collected with traps tends **to be free of foreign materials.***
- *Propolis scraped from periodic collections on the other hand is often laden with **errant pieces of debris and wax***
 - Some forgo cleaning and extract (and subsequently filter the propolis) without cleansing it of foreign materials
 - The assumption here is that the extract will do the job and there is no need to separate out the wax and other detritus. This is up to you and personal preference.
 - Many exercise their preference to clean the propolis by processing it through a hot water bath so the extraction is a concentration from the propolis directly



A Process To Clean Propolis

A clean Chinese Food Soup Container works well for this



- ❑ Place your propolis in a disposable container
- ❑ Heat a kettle, and pour hot water* over your collected propolis bits – Give it a stir
- *Only use as much water as needed to create a loose slurry*
- *Wax will separate out of the propolis mass and float to the top*
- *Most debris will fall out to the bottom as you stir*
- *Let it settle*

A Smooth Chopstick Works Well for this

***Water**

Keep it between
80-90°C (176-194°F).





Cleaning Propolis (Continued)

□ When it cools, pour off the water

- *Separate the propolis from the strata*
- *If it still contains foreign elements repeat the process*
- *Keep this up until the wax is separated*
 - You will know you are close on your separation when little **dots of wax** appear across the top of the propolis after cooling.
 - This happens after only a few rounds of mixing the slurry

Note: Reserve the water; this is after all an aqueous extraction




Thin 'Pancakes

□ When the Propolis is clean; Flatten it into a pancake and freeze

- *This makes it easier to break apart for grinding.*

- Leave it in a large ball and you will find it quite difficult to break up

- *You could also leave it in small shards or freeze it and grate it with a cheese grater*



There are several thin sheets here separated by plastic wrap

Prepared for Freezing

❑ Prepped in **ZipTop Bag**

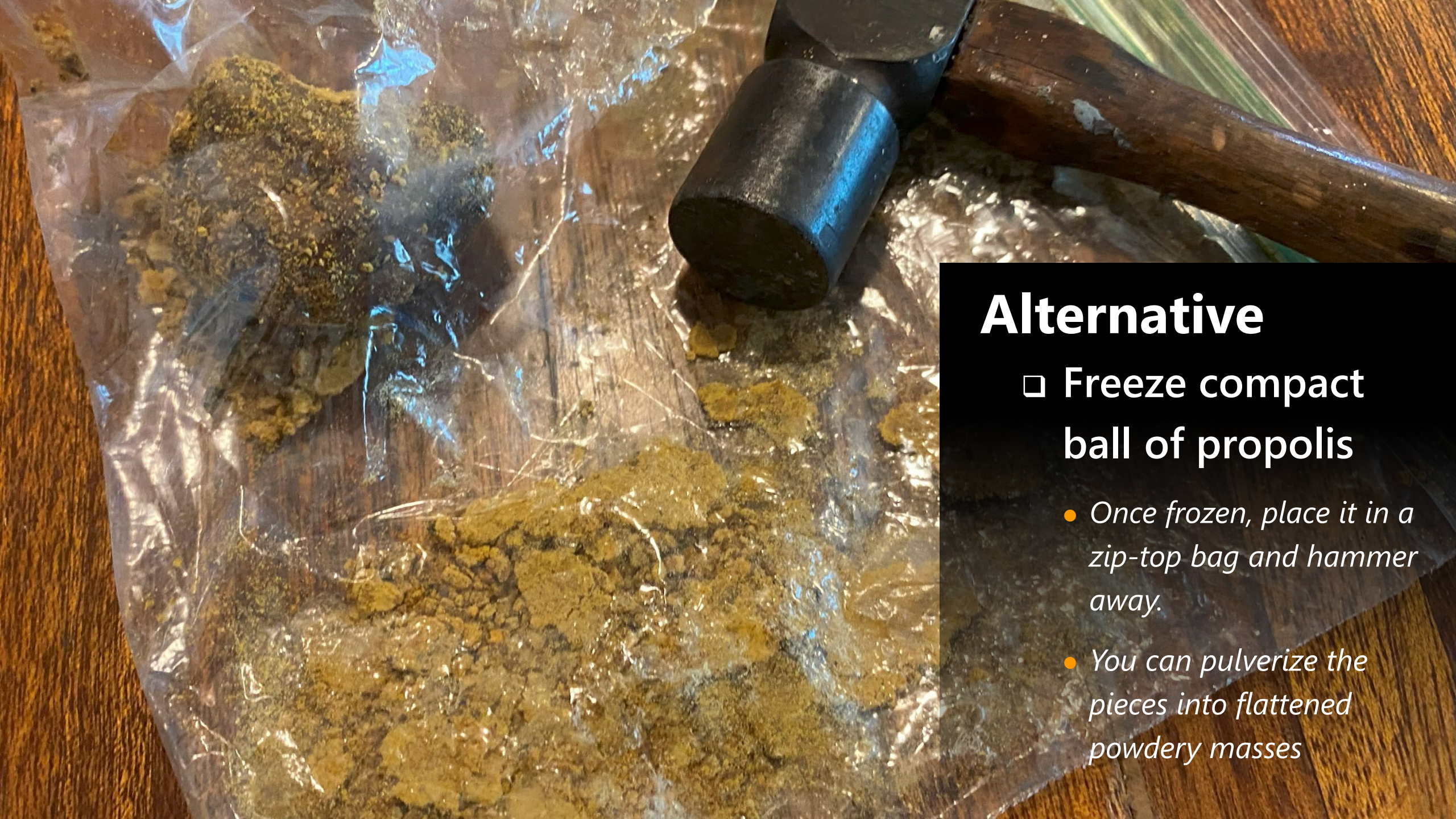
- *This prevents the propolis from picking up off flavors, odors and bacteria from the freezer*





Once Frozen - Grind

- ❑ Fracture the pieces into small shards
- ❑ Use a Smooth Mortar & Pestle to convert to a Powder
 - *You can use a small coffee grinder too*



Alternative

- ❑ Freeze compact ball of propolis
 - *Once frozen, place it in a zip-top bag and hammer away.*
 - *You can pulverize the pieces into flattened powdery masses*



The Final Powder Form

□ Once it is a powder...

• *You can:*

- USE IT IN POWDER FORM
- BLEND IT IN WITH OTHER SUBSTRATES
- PLACE IT IN AN EXTRACTION

Rough Mortar and Pestle

□ If you choose a coarse M&P

- *Propolis will get stuck in the nooks and crannies*
 - If you want to dedicate a piece of equipment, that is an option.
 - It is likely that you will not be able to use it for other purposes though





A word on Coffee Grinders

□ They can work, *but...*

- *The grinding action works well until heat builds up due to friction.*
 - During operation, the **friction causes heat**.
 - Once the heat gets to a certain level, it will melt the propolis. **The propolis becomes super sticky and it will get stuck on the blades**
- *Many use this approach with success*
 - It is easier but you have to do it with care.
 - Your mileage may vary, but it is a lot easier than the elbow grease needed with a Mortar and Pestle

Beyond Powder > Why Extraction?

❑ Breaking powders down with Extraction

- *Extraction will deconstruct the powder and break down (unlock) its constituents*
 - This leads to improved consumption or contact in the case of topical applications
 - Different extraction methods will yield different elements extracted from the propolis

❑ Shelf Stable

- *Processing the propolis into a tincture or extract with alcohol or other preservatives extends its shelf life.*

Definition

Extract: a product prepared by extracting

Especially: a solid or liquid substance containing the essence of a food, plant, or drug in concentrated form

Factors that Affect Extraction

□ Elements in combination

- **Menstruum:** *The solvent being used in the extraction*
- **Surface Area:** *The finer the grind, the faster the extraction*
- **Extraction Time:** *Depending on what is extracted, longer usually better*
- **Temperature:** *Depending on your process, it can have an impact*
- **Interactions:** *Interactions with foreign materials in the mix; also the ratio of solvent to target extraction material*

Definition

Menstruum: a substance that dissolves a solid or holds it in suspension

Review of common Extraction Mediums

☐ Aqueous

- *Extractions via water*

☐ Oil

- *Extraction into a carrier oil; especially with heat*

☐ Industrial

- *Items like Acetone, etc.*

☐ Propylene Glycol

- *An alternative to alcohol, PG has its own merits and limitations in execution*

☐ Alcohol (Spirit or Ethanol)

- *Extraction in 70+ABV alcohol*
- *More typical > 90-Proof Grain Alcohol*

Effectiveness of the Extractions

- ❑ Most of the active ingredients in propolis are most soluble in Ethanol or Propylene Glycol
 - *Water-based propolis extract may not be as potent as Ethanol, Oil, or PG-based extracts due to the limited solubility of some propolis compounds*
 - Still **water extracts show at least some bactericidal and fungicidal effects**, as well as wound healing properties.
 - *Extraction use cases vary and may inform choice of extraction method*
 - A common requirement example is a creating an extract that free from alcohol

Vegetable Oil Extraction

□ Fixed Oil Extraction

- *Choose a neutral Vegetable Oil: Olive, Sunflower, Coconut, etc.*
 - Oils are another alternative to the ethanol-based extracts as they do not evaporate
 - They tend to be more compatible, and easier to blend, into different products that are meant to take on the propolis extract as an ingredient
 - Oils prove to be a good solvent for resins, oleo resins, essential oils, flavonoids
- *Like water and Propylene Glycol, Oils are heated to aid in extraction*
 - Unlike Water and Propylene Glycol, the heat used here is less.

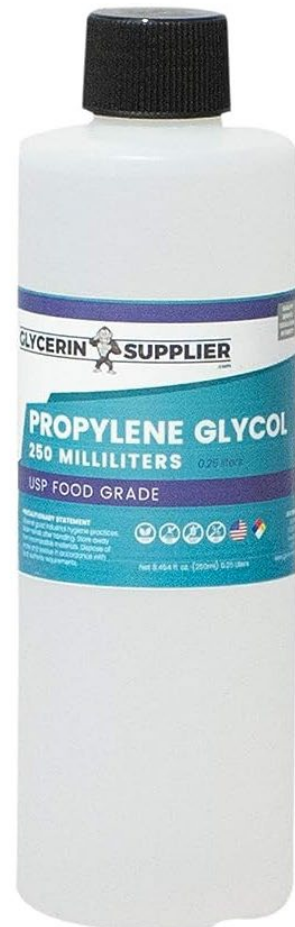
Propylene Glycol, as a choice

□ Food and drug usage

- *Propylene glycol is used in various edible items such as coffee-based drinks, liquid sweeteners, ice cream, whipped dairy products and soda.*
- *Propylene glycol is used as a solvent in many pharmaceuticals, including oral, injectable, and topical formulations.*
 - Many pharmaceutical drugs which are insoluble in water utilize propylene glycol as a solvent and carrier; it is preferential over ethanol-based extractions
 - Propylene glycol is also used as a solvent and carrier for many pharmaceutical capsule preparations.

Not... Ethylene Glycol

It is not the same as the product used in antifreeze for cars



Propolis to Extraction Fluid Ratio

□ Generally, a **1:5 Ratio**

- *As a rule of thumb, the ratio of **propolis to the extraction medium** is one part to five parts by weight*
 - **Weigh** both the propolis and liquid and combine them in a ratio
 - 1 part propolis by weight
 - 5 parts extraction medium (Menstruum)
- **Alcohol Extracts** *of Varying potencies; the ratios vary*
 - In alcohol extracts you can adjust the ratios to derive potencies that yield different concentrations (10%, 20%, 30%).

More on
this in a
moment



Extraction Process Overview: 5 Steps



ADD

Add the propolis to a suitable container

1



POUR

Pour over the Extraction Fluid

2



STIR

Stir/Shake to combine.
Seal to steep;
agitating occasionally

3



FILTER

Strain/filter into a container

4



STORE

Store in a proper way

5

Heating & Stirring in the Extraction Liquid

- Some Extractions do best with hot liquids
 - *Never use boiling liquids, it kills off essential volatiles*
 - *Consider using a double boiler and stirring while heating the substrates*

Distilled Water

Heat to a range of 80-90°C (176-194°F).

Vegetable Oil

Heat to a range of 50-60°C (122-140°F).

Propylene Glycol

Heat to a range of 70-80°C (158-176°F).

Alcohol Extract

□ For beekeepers...

- *Alcohol is likely the most common approach for creating **tinctures***
- *The alcohol chosen impacts the extraction power of the extract*
- *Common choices for the extraction*
 - Grain Alcohols - Ethanol (e.g. Everclear 95%)
 - Distilled Spirit (e.g. Vodka 70%)



Definition

Tincture:
a medicine made
by dissolving a
drug in alcohol



Can you get Everclear in Canada?

I did a quick BING search,
and this is what I found

Apparently Yes

People also ask

Where can I buy Everclear?

Yes, you can buy Everclear 190 proof grain alcohol in Alberta, Canada. Most major liquor stores have it, and in some cases, it's available for online purchase. It may still be unavailable in other regions of Canada, as it is banned for the general public in several states in the USA.

Everclear: Pure, Potent, Pandemoniu...
[luxe.digital/brand/everclear/](https://www.luxe.digital/brand/everclear/)

www.bkcorner.com



keeper's
CORNER
PODCAST

Alcohol Ratios

Guides Inform of the ratios of propolis to alcohol

- *The FAO guide (from Italy)*
- *Propolis Tincture guide from **University of Minnesota (UoM: Gary's Honeybee Page)** are the most referenced*
 - The good news they are both consistent
 - The **University of Minnesota is more expansive** so we will use that as our base

Food and
Agriculture
Organization

Things you can not find elsewhere!

Gary's Honeybee Page

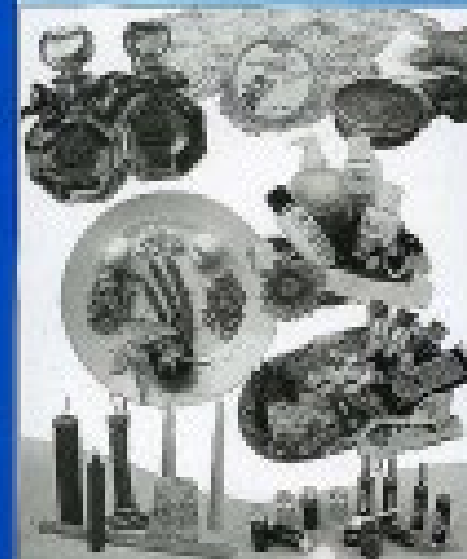
Home Good information Kids Stuff Mead Pictures Plans

Propolis tincture

Making Propolis Extract to download PDF [click here](#)

Value-added products
from beekeeping

124



Alcohol Ratios

□ Guides to inform of the ratios of:

Propolis to Alcohol

- *UoM specify **Alcohol Extractions by concentrations***
 - **1:9** Ratio > 10% Concentration
 - **1:4** Ratio > 20% Concentration
 - **3:7** Ratio > 30% Concentration

Many beekeepers simply opt for the strongest concentration

Things you can not find elsewhere!

Gary's Honeybee Page

Home

Good information

Kids Stuff

Mead

Pictures ▾

Plans ▾

Propolis tincture

Making Propolis Extract to download PDF [click here](#)

UoM (Gary's) Measurements

	Concentration		GRAMS	GRAMS	<i>milliliters</i>
▪ 1:9	10%	▶	100	900	1146
▪ 1:4	20%	▶	200	800	1019
▪ 3:7	30%	▶	300	700	892
			Propolis	Alcohol	Alcohol

VODKA, etc. **70%**

UoM (Gary's) Measurements

	Concentration		GRAMS	GRAMS	<i>milliliters</i>
▪ 1:9	10%	▶	100	900	1073
▪ 1:4	20%	▶	200	800	953
▪ 3:7	30%	▶	300	700	834
			Propolis	Alcohol	Alcohol

It can be said that **the longer the propolis is soaked in alcohol the more ingredients will be dissolved.**

However, soaking beyond two or three weeks **does not seem to increase the extent of extraction.**

FAO AGRICULTURAL SERVICES BULLETIN



Filtering

- ❑ Filtering removes particulate matter
 - *The net result is the residual liquids from the extraction*

- ❑ Filtering Substrates
 - *Several mediums for filtering are suitable*
 - Most common are paper filters, cotton, cheese cloth, etc.
 - Finer filtration (like a coffee filter for example) may take time (hours and hours)
 - ❑ You may even wish to use several filters for the process, rotating out filters that become clogged with propolis slurry

“Washed” Coffee Filter

❑ Recommended prior to filtering

- *Rinsing a filter wets the paper and washes away the ‘papery’ taste that you get with some filters.*
 - Additionally priming the paper with water is said to negate some of the absorption for an aqueous extract
- *Pour hot water over the filter and allow it to sit until the water drains. A lightly damp filter is okay.*
 - Discard the rinse water and proceed with straining your aqueous extract. When it dries out of excess water, it is not a compromise to filtering alcohol, PG, and others





Finer filtration, like a coffee filter for example, **may take time** (hours and hours)

You may consider several filters for the process, rotating out filters that become clogged with propolis slurry

Unlike the photo, keep the liquids covered so they do not evaporate during filtration

Fill and Seal your Extracts

❑ Fill the bottles:

- *Carefully pour the propolis extract into the sterilized bottles or jars.*
 - Use dark bottles that do not permit light to pass through
- *Leave a small amount of space at the top to allow for expansion and prevent leakage when sealing.*

❑ Seal the bottles:

- *Tightly seal the bottles to create an airtight environment.*
 - This helps preserve the propolis extract and prevent contamination.



Fill Seal, Label and Store Properly

□ Label the bottles:

- *Label each bottle with:*

- Consider information such as:

The Date Produced | Dilution Ratios | Any other important information

□ Store the bottles properly:

- *Store the propolis extract bottles in a cool, dark place away from direct sunlight, heat, and humidity.*

- Keep the bottles out of reach of children and pets.



Propolis

- ❑ There is a lot to know and share
 - *It is an unheralded compound and simply another amazing product that the bees produce*
 - *We encourage you to consider making a plan to do something to encourage increased propolis production in your hive*
 - *And hopefully this has compelled you to consider making an extract*

Links and Resources

Several Links for REFERENCE and to continue your Journey

Resources

QR CODE LINKS



Propolis | Bee Culture



FAO Value Added Products from Beekeeping



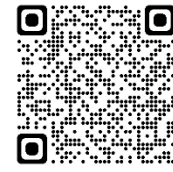
Gross Composition of Propolis



University of Minnesota Gary's Bees: Propolis Tincture



Antibacterial properties of propolis (bee glue)



Propolis: Wikipedia



Propolis Tincture Procedure



ResearchGate: Propolis Science Topic



Processing Propolis Part 1 | Bee Culture



Bee Propolis: A Comprehensive Review

Links and Resources



Propolis | Bee Culture

<https://www.beeculture.com/propolis/>



Gross Composition of Propolis

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6864204/>



Antibacterial properties
of propolis (bee glue)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1292560/pdf/jrsocmed00138-0031.pdf>



Propolis Tincture Procedure

<https://garybees.cfans.umn.edu/good-information/propolis-tincture>



Processing Propolis:
Part 1 | Bee Culture

<https://www.beeculture.com/processing-propolis-part-1/>



FAO Value Added Products
from Beekeeping

<https://www.fao.org/3/w0076e/w0076e00.htm#con>



University of Minnesota
Gary's Bees: Propolis Tincture

<https://garybees.cfans.umn.edu/good-information/propolis-tincture>



Bee Propolis:
A Comprehensive Review

https://www.researchgate.net/publication/360608814_BEE_PROPOLIS_A_Comprehensive_Review



ResearchGate: Propolis
Science Topic

<https://www.researchgate.net/topic/Propolis>



Propolis: Wikipedia

<https://en.wikipedia.org/wiki/Propolis>



QUESTIONS



EMAIL

Kevin@BKCorner.org

WEBSITE

www.bkcorner.org

This presentation is available to download.

Search the website for presentations or click the presentations link