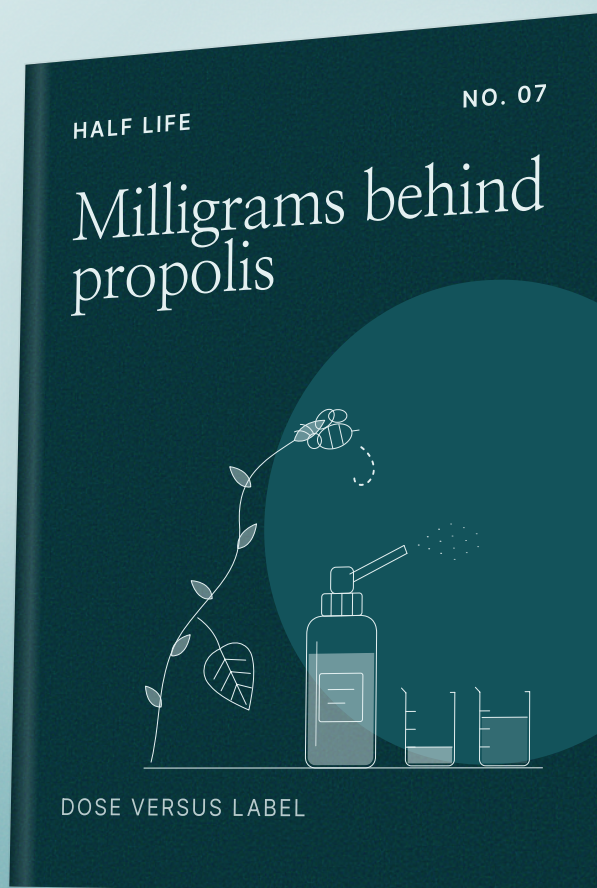




MONOGRAPH · DOSING

A practical guide to dosing propolis sprays and extracts

Two propolis sprays can list the same resin yet deliver very different milligrams, solvents and chemistry. This guide translates hive variation into dose, absorption and trial context so a daily stack can be judged in milligrams rather than marketing.

- **Dose reality**
Trial chemistry and label milligrams often diverge, so compare both.
- **Solvent matters**
Ethanol pulls more resin than glycerin and changes dose volume.
- **Marker limits**
Flavonoid totals describe a batch, not absorption or outcome.

By Katherine Warren · Updated Aug 21, 2026 · 9 min read

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Your throat feels rough, the pharmacy shelf offers three small amber sprays, and every label says propolis without saying how much active material is inside. One lists grain alcohol, one says alcohol free glycerin, and none names the harvest lot or the milligrams tested in research. This guide starts from that shelf confusion and works backward to hive, solvent and assay.

01

From apiary to lot: why place and season shift chemistry

Hive products vary with plant species, season, climate, environmental conditions and genetic factors. Differences in bee species plus geographical and botanical source drive propolis variation, so two honestly produced jars from separate regions can differ in appearance and aroma. Across central and eastern Europe including Poland, black poplar or birch supplies most propolis, and source influences colour and chemical composition.

Royal jelly runs on a separate timetable within the colony. Worker hypopharyngeal gland activity reaches its highest point between day 6 and day 12 after emergence, and royal jelly production relies on pollen intake that supports gland development. Staff scientist Emily O’Neil at The Best Bees Company describes the field sign this way: I can often judge whether a colony holds enough pollen or bee bread by inspecting the larvae inside a hive. When larvae appear to be floating in pools of royal jelly, that tells me nurse bees ate enough pollen to make royal jelly.

Scale at country level supplies background rather than a quality verdict. Taiwan reports roughly 160,000 colonies and royal jelly output as one illustration of how much managed beekeeping may stand behind familiar products. For a buyer the practical move stays narrower. Ask the location of the apiaries, the plants visited by the bees, and the harvest season for the lot. A company that identifies growers, sites and harvest dates provides something traceable.

02

How harvest method changes what ends up in the bottle

Typically 50 to 100 grams of propolis can be collected per hive per season. Output differs among hives, with some colonies producing little and others sealing parts so thoroughly that opening the hive becomes difficult. That range is normal and helps explain why one batch tastes stronger or appears darker than another.

Two collection methods predominate. Scraping lifts propolis straight from frames and boxes using a hive tool. It works quickly and requires no added equipment, but scraping propolis from painted equipment or treated hives risks paint and varroa treatment chemicals in the material. Flakes of paint and residues of mite treatments can accompany the scrapings into the jar.

A propolis trap follows a different route. The unit is a queen excluder like sheet with smaller holes, sold for around \$10, set atop the top box with the outer cover propped open to admit light. Bees resent light and airflow through tiny openings, so they close those gaps with resin. Full traps go into a fridge or freezer until the propolis hardens, then I harvest it by bending, scraping or tapping inside a bag. Cold renders the resin brittle, so it pops free instead of smearing.

FROM THE EDITORS

Scraping stays cheap and needs no added gear, while traps limit contact with paint and hive surfaces. Either approach can yield sound material when equipment is clean and mite treatments are recorded, so ask how the lot was collected and what surrounded it.

03

Cleaning and low heat handling before extraction

Fresh propolis contains wax, wood bits, bee parts and dust. Cleaning involves hardened propolis broken into small pieces, swirled in cold water where propolis sinks and dirt floats for skimming, then dried cool on parchment out of direct sun. Cold water matters to me because warm water softens resin and holds debris rather than freeing it. Slow gentle drying preserves aroma for me and keeps the fragments loose and pourable.

Cleaned propolis is held in the fridge or freezer until use. Cool storage slows change in aroma and texture during the interval before extraction. Small beekeepers often hold cleaned lots in labeled bags with harvest place and date, which later becomes the lot identity on a certificate of analysis.

I watch heat closely at every step that follows. I heat oil propolis blends gently below 122 degrees F and wax propolis creams below 130 degrees F, since heat degrades useful properties. The same caution covers drying and melting around honey blends. A maker who records temperatures and drying conditions shows process control rather than habit alone.

04

Ethanol against glycerin: extraction range, dose volume and stability

I treat ethanol and glycerin as solvents that extract separate fractions from one resin. For alcohol tinctures I expect 40 to 70 percent ethanol to extract alkaloids, resins, glycosides, terpenes and essential oils, with 60 to 70 percent needed for resinous matter. Ethanol extracts more broadly than glycerin in my reading, with diluted ethanol favoring water soluble compounds and stronger ethanol favoring oil soluble resins, essential oils and some alkaloids.

A home scale recipe illustrates the ratio logic used in larger production. A 10 percent tincture for me means 1 part propolis by weight in 9 parts grain alcohol at 75 proof or higher, like vodka or Everclear, never rubbing alcohol. The jar is held dark and shaken 2 to 3 times per day for up to 3 weeks, then strained and stored dark. Shaking keeps fresh solvent against the resin, while dark storage reduces light exposure through the soak.

Glycerin as the alcohol free path

Glycerites use 55 to 70 percent vegetable glycerin and recover about 60 to 70 percent of actives versus alcohol, so I read 1 mL tincture as about 2 to 3 mL glycerite. A finished glycerin extract should stay at least 55 percent glycerin if it is to preserve well. That cutoff is why I check stated glycerin content instead of assuming a sweet extract will keep.

Shelf life follows the solvent. I expect alcohol tinctures to last 3 to 5 years, glycerites 14 to 24 months, and vinegar oxymels 6 to 12 months. A short date on a glycerin spray does not prove sloppy manufacture to me. It usually reflects preservation chemistry, storage conditions and frequency of opening.

FEATURE	ALCOHOL EXTRACT	GLYCERIN EXTRACT
Solvent range	40 to 70 percent ethanol, 60 to 70 percent for resinous material	55 to 70 percent vegetable glycerin, at least 55 percent for preservation
What it captures	Broader range including resins, essential oils and some oil soluble compounds	Narrower range, about 60 to 70 percent of active compounds versus alcohol
Dose comparison	Baseline at 1 mL tincture	Roughly 2 to 3 mL glycerite for a similar material input
Shelf life unopened	3 to 5 years stored dark	14 to 24 months stored cool and dark

05

What phenolic and flavonoid assays show about a lot

Makers like to cite total phenolics or flavonoids, and I always ask what sits behind the figure. Folin Ciocalteu and aluminum chloride assays estimate total phenolics and flavonoids, while DPPH and ABTS test radical scavenging, yet all give broad rather than compound level data. Simply put, they estimate groups of compounds plus laboratory activity, not the precise mixture inside the bottle.

Honey enrichment trials show me why that methodological detail matters. Tracing a batch to hive and forest, honey enriched with propolis extract gained polyphenols including flavonoids and phenolic acids, led by chrysin, pinocembrin, p coumaric acid and ferulic acid. Enrichment raised in vitro antioxidant, antiradical and reducing activity as propolis dose rose, but it degraded color, smell, texture and taste. Those bench measures describe reactions in glassware, not outcomes in people.

Total phenolic and flavonoid tests by spectrophotometry plus DPPH and ABTS give broad estimates only, so I want LC MS for compound detail. Liquid chromatography with mass spectrometry separates and names single compounds, which lets me compare lots across seasons. Major royal jelly protein 1 and 10 hydroxy 2 decenoic acid rank as the leading protein and fatty acid in royal jelly and act as key quality markers, proof that hive products need specific markers not one shared score.

Propolis makeup shifts widely with plant, geography, bee species and processing, so I compare studies only with caution. Clinical support for medicinal claims looks limited to me, so tinctures should not displace professional care. As Dr. Ryszard Maleszka of the Australian National

University notes, With our current knowledge we only scratch the surface of biological systems, and honey bee biology is no exception. A flavonoid value can aid identity and batch comparison when methods hold steady, but it cannot show what a spray does for me.

FROM THE EDITORS

A figure lacking method, solvent and date leaves me unable to compare brands or seasons. I ask which assay was used, which solvent supplied the sample, and whether LC MS ran beside the broad assays.

06

Purity, blend chemistry and questions that pin down dose

Adding propolis shifts honey chemistry in ways I find largely predictable. Propolis addition left HMF, sugar content and specific conductivity without major change, but it clearly increased free acidity and water insoluble substances. Free acidity and water insoluble matter thus help me track resin input to a blend, while sugars and conductivity may remain flat. On the tongue I taste the compromise directly. Propolis in honey lifts phenolics and in vitro antioxidant activity but harms sensory quality, so I see formulation as measured chemistry traded against color, smell, texture and taste.

Contaminant screening belongs next to composition testing in my checklist. Exact pesticide and heavy metal levels in a given bottle stay unknown to me without a batch specific lab report. I think shoppers should request recent third party data linked to lot or batch number, plus notes on apiary treatments and harvest gear. The label seldom fits that detail, so I value a linked certificate of analysis above front label claims.

Batch variation strikes me as normal in hive products because plants, weather, bee genetics and cleaning all alter the starting mix. The right dose and duration for sprays remains unproven, since what we have are preparation ratios rather than clinical dosing. How storage time and temperature alter spray potency after opening also stays unclear to me. I keep bottles dark, cool and sealed, mark the opening date, and consult a qualified professional about use, especially for children, pregnancy or allergy history.

My useful buying questions would fit on an index card. I want apiary location and harvest timing. I ask whether propolis was scraped or trap collected, and how mite treatments were handled. Before trusting the label I ask which solvent and ratio were used, and what glycerin percentage applies where relevant. Still unconvinced I ask which lab tested it, which methods it used, and whether the report matches the lot in my hand. For a stack that already holds three or more

daily products, keep the label that states form, milligrams and method, and leave the blend with a proprietary total on the shelf. Where those answers remain vague, I treat that step as still opaque.

07

The checklist

- ☐ Log the lot apiary country and region exactly as reported.
 - ☐ Note the harvest season and plant source when stated.
 - ☐ Ask whether propolis was scraped or trap collected
 - ☐ Review the hive paint and varroa treatment notes with care.
 - ☐ Verify the grain alcohol proof or glycerin percentage on file.
 - ☐ Match the solvent ratio to the label directions closely.
 - ☐ Ask for a third party lot specific lab report before trusting dose.
 - ☐ I compare total phenolic method across batches before I trust a trend.
 - ☐ Track free acidity and water insoluble matter across lots.
 - ☐ Expect sensory shifts as the propolis share rises.
 - ☐ Mark the open date and store it dark and cool.
 - ☐ Ask a professional about household use and dose limits.
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Sources and further reading

- Mechanistic exploration of royal jelly production in caged honey bees (*Apis mellifera*) · pmc.ncbi.nlm.nih.gov
- Thriving Hives: Propolis - Harvest and Usage · extension.usu.edu
- The Effect of Enriching Honey with Propolis on the Antioxidant Activity, Sensory Characteristics, and Quality Parameters · pmc.ncbi.nlm.nih.gov
- Phenolic content, flavonoid distribution, and radical-scavenging activity of honey, propolized honey, and propolis extracts from Cauca, Colo · link.springer.com
- Phytochemical profiling and characterization of flavonoid derivatives from propolis sample and investigation of cytotoxic and antiprotozoal · nature.com

For information only, not medical advice. These statements have not been evaluated by the Food and Drug Administration, and no supplement here is intended to diagnose, treat, cure or prevent any disease. Ask a doctor or pharmacist before starting one, especially alongside prescription medicines, in pregnancy or before surgery.



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Katherine edits the news desk and the monographs at Half Life. She keeps a spreadsheet of every dose she has seen on a label beside the dose used in the trial, and the gap between the two columns is usually the story.