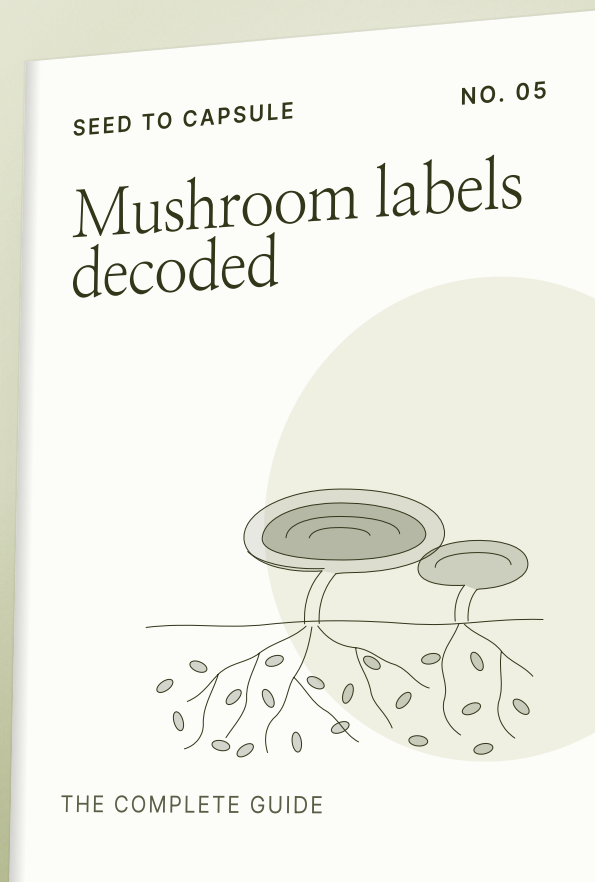




SOURCING GUIDE · EXTRACTION

Rank mushroom powders by sourcing and testing

This guide is for careful buyers comparing mushroom powders, coffees and capsules. After reading it they will be able to rank products on sourcing, extraction and testing detail.



Fruiting body

Stem and cap usually carry more beta glucans than myceliated grain.



Extraction method

Hot water releases beta glucans, alcohol adds triterpenes for some species.



Test numbers

Beta glucan share matters more than total polysaccharides or ratio alone.

By Kristen Decker · Updated Sep 16, 2026 · 10 min read

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Mushroom powders often list impressive ratios while saying little about what was tested. Many contain more grain starch than fungal compounds, and a 2017 report in Nature found only five of 19 reishi batches matched their labels. Once the sourcing, extraction and certificate are legible, comparison becomes methodical rather than guesswork.

01

Fruiting body versus mycelium on grain

Mushroom mycelium is a root like system of tiny threads beneath the surface. Fruiting bodies are the stem and cap that rise above it. Both parts contain fungal material, and the value of mycelium remains debated. Some describe overlap and complementary compounds in both parts, while others favour fruiting bodies for higher beta glucans and history of use.

Cultivated mycelium needs a substrate such as rice or oats. The threads grow through that grain, and rushed harvest can leave higher grain content than mycelium. The result is often called myceliated grain biomass. A quality fruiting body extract should show 15 to 40 percent beta glucans by dry weight, while myceliated grain biomass often shows under 5 percent beta glucans and over 40 percent starch.

That difference matters because total carbohydrates including polysaccharides are about 50 percent of mushroom dry matter. In a fruiting body product, much of that carbohydrate can be fungal beta glucan. Trace a myceliated grain product backwards and much of it can be leftover substrate. Labels do not always make the distinction plain. Look for the words fruiting body extract, mycelium, myceliated grain, substrate, brown rice, or oats in the Supplement Facts panel and the other ingredients line.

History of use also enters here. Fruiting bodies have the longer record in traditional preparation and in the material that labs reference for identity. That does not prove a stronger result for any person. It does explain why many buyers treat fruiting body as the default when beta glucan content is the goal, and ask for extra documentation when a product leads with mycelium.

02

Hot water versus dual extraction in plain terms

Mushroom cell walls are made largely of chitin, and raw ground powder does not break that wall down. The wall locks compounds inside. Without extraction, much of the material passes through in a form that simmering or laboratory methods would otherwise release.

Hot water extraction simmers mushroom material in water, often for hours, to release water soluble compounds including beta glucans. The liquid is then dried into a powder. Dual extraction combines hot water extraction with an alcohol extraction, then combines the two extracts into one finished product. After harvest, dual extraction targets both water soluble beta glucans and alcohol soluble compounds such as triterpenes.

It remains unclear when dual extraction is needed. Views differ, with it seen as useful mainly for reishi type triterpenes and also as non negotiable for reishi and chaga and wasteful or degrading for turkey tail. The cautious reading is species specific. For reishi, where triterpenes are part of the stated profile, a dual extract has a clear rationale. For species valued mainly for beta glucans, hot water alone may be sufficient.

Neither term alone proves strength. A label can say hot water extracted or dual extracted without naming time, temperature, solvent share, or tested compound levels. Use those words as a starting point. Then ask how much extract is present per serving, which compounds were measured, and whether the certificate shows the result for the lot in hand.

FROM THE EDITORS

Dietary supplements are regulated as a category of food, not as drugs, under the Dietary Supplement Health and Education Act. The U.S. Food and Drug Administration does not review dietary supplements for safety or effectiveness before they reach store shelves. Brand statements describe intent, not agency review.

03

Extract ratios and what percentages prove

An extraction ratio such as 8:1 describes how much raw material went in relative to what came out. Eight parts of raw mushroom produced one part of finished extract. The ratio does not by itself verify active compound concentration. A high ratio can reflect a concentrated extract or a process with low yield, and the number alone cannot distinguish between them.

Percentage tied to batch testing answers concentration. Mushroom beta glucans consist of D glucose monomers with beta 1,3 linkages for linear structure and beta 1,6 linkages for branching, unlike cereal beta glucans with 1,3 and 1,4 and no 1,6 branching. A label that states 25 percent beta glucans, with a method named and a lot specific certificate behind it, says more than 8:1 alone. The ratio tells the input story. The percentage tells what remained in measurable form.

Vague terms carry no standard meaning. Words such as standardized without a named compound and amount, or clinical strength without a serving and reference, do not answer either question. A credible label names the part used, the extraction type, the amount of extract per serving, and the measured share of beta glucans or other stated compounds. Where triterpenes are claimed, as with some reishi products, the label should name the share and the test as well.

Beta glucan measurement remains difficult because methods differ, including phenol sulphuric total carbohydrate methods versus Congo red, aniline blue, Megazyme and GlucateLL approaches. Different methods can return different numbers for the same powder. That is why method name, lab name, and date belong beside the percentage. Without them, two products with similar numbers cannot be compared with confidence.

04

Beta glucan versus total polysaccharide numbers

Starch is a polysaccharide, so high total polysaccharide results can reflect grain starch rather than mushroom beta 1,3 and 1,6 glucans. This is the central confusion on many labels. Total polysaccharides include both fungal beta glucans and alpha glucans from grain starch. A product grown on rice or oats can therefore show a high polysaccharide number while containing little fungal material.

Use two flags together. The first is beta glucan share. The 15 to 40 percent band by dry weight marks a quality fruiting body extract. Results under 5 percent beta glucans suggest dilute or grain heavy material. The second is starch or alpha glucan share. Results over 40 percent starch point toward myceliated grain biomass rather than extracted fruiting body. When a brand reports only total polysaccharides, the starch question stays open.

WHAT THE LABEL SHOWS	WHAT IT CAN MEAN	WHAT TO ASK NEXT
Beta glucans 20 percent with method named	Measured fungal glucans tied to a test	Which lab, which lot, what date
Total polysaccharides 45 percent, no beta glucans	Possible mix of fungal glucans and grain starch	Share of beta glucans and starch separately
Beta glucans under 5 percent, starch over 40 percent	Likely myceliated grain biomass	Part used, substrate, extraction type
Ratio only, such as 10:1, no percentage	Input amount, not concentration	Tested compound levels for this lot

Grain fillers are not always added powders. Often they are the substrate itself, carried through drying and milling. Ingredient lines that list mycelium plus rice, oats, or maltodextrin style carriers deserve a closer look at the beta glucan and starch panels. A fruiting body extract should need no grain explanation.

FROM THE EDITORS

Label and certificate detail improves comparison but a lab result covers one batch. It does not prove absorption, consistency across future batches, or a specific health outcome. Exact dose in any jar remains unknown without a batch specific certificate, and pharmacokinetic reports focus on injected lentinan rather than orally consumed beta glucan.

05

How to spot grain fillers on a certificate

A Certificate of Analysis covers one batch, not a brand. Start with the header. If the paperwork matters, a Certificate of Analysis should be matched by lot number to the package and dated within the last 12 to 24 months, with reports older than 2 years treated as not reflecting current quality. Compare the lot on the jar with the lot on the sheet, for a difference means the sheet does not describe the jar.

Next check the issuer. The laboratory issuing a COA should be an independent accredited third party, with ISO IEC 17025 accreditation as the standard to look for. In house sheets have a place for process control, but comparison depends on independent testing. Name, accreditation, signature and date should appear on the document itself.

Then read the summary panels. Identity confirms species and part. Microbials, heavy metals, pesticides, mycotoxins and residual solvents each cover a different risk from field to finished powder. A complete heavy metals panel should test for lead, mercury, arsenic and cadmium, with results below USP 232 limits. Mushrooms can accumulate metals from soil, substrate and water, so absence of this panel leaves a basic sourcing question unanswered.

Reading the carbohydrate section

Find beta glucans, alpha glucans or starch, and total polysaccharides as separate lines. Calculate the likely story. High beta glucans with low starch fits a fruiting body extract. Low beta glucans with high starch fits myceliated grain. High total polysaccharides without a beta glucan line proves little about fungal content. Note the method beside each line, since phenol sulphuric and dye binding or enzymatic methods do not always agree. Keep the sheet with the lot number for future comparison.

06

What credible labels disclose and how to brew mushroom coffee

Reishi, lion's mane and cordyceps labels each carry a different burden of proof. For reishi, bitterness often signals triterpenes, and brands that claim those compounds should show a triterpene profile and state whether hot water or dual extraction was used. For lion's mane, neutral blending and daily use positioning are common, so the label should still state fruiting body or mycelium, extract amount per serving, and beta glucan share. For cordyceps, variability by source is high between cultivated mycelium versus fruiting body and between different species names, so the label should name the source material and keep performance positioning separate from test results.

Mushroom coffee is typically a mix of coffee with dried mushroom extract powder, including lion's mane, chaga, reishi and cordyceps. Many reputable mushroom coffee blends pack between 1 and 3 grams of mushrooms per serving. That amount includes extract powder, not raw mushroom equivalent unless the label says so. One to two cups is a common sweet spot in brand guidance, but the useful math is personal. Add the mushroom grams per serving, check whether the species and extraction are named, and track caffeine across everything taken in the day.

The FDA general guideline for healthy adults is to keep daily caffeine under 400 mg. A mushroom coffee that blends regular coffee with extracts still contributes caffeine from the coffee share. Decaf style blends contribute less, but serving size and cup count still govern intake. People who are pregnant, breastfeeding, giving a product to a child, taking blood thinners or immune modulating medicines, or managing a chronic condition should pause and

ask a clinician before regular use, since long term safety data for these groups are limited. Whether a dual extract or hot water extract produces a different felt effect for a specific person also remains unshown.

To rank three products, lay out the same fields for each. Part used and substrate. Extraction type and extract grams per serving. Beta glucan share with method, plus starch where given. Lot matched certificate with date and independent ISO IEC 17025 lab. Heavy metals below USP 232 limits. The product with the most complete and current documentation usually ranks first, even if its ratio looks smaller.

07

The checklist

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- ☐ Choose fruiting body extract when beta glucans are the goal
 - ☐ Check for substrate words such as rice or oats
 - ☐ Note hot water or dual extraction by species
 - ☐ Treat ratio as input, not proof of strength
 - ☐ Look for beta glucan percent with method named
 - ☐ Reject total polysaccharides alone as proof
 - ☐ Flag under 5 percent beta glucans or over 40 percent starch
 - ☐ Match COA lot number to the package
 - ☐ Use COAs dated within 12 to 24 months
 - ☐ Confirm independent ISO IEC 17025 lab
 - ☐ Confirm lead, mercury, arsenic and cadmium below USP 232 limits
 - ☐ Count mushroom grams per coffee serving from 1 to 3 g
 - ☐ Keep total caffeine under 400 mg per day
 - ☐ Ask a clinician for pregnancy, children, blood thinners or immune medicines
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Sources and further reading

- Mycelium vs. Fruiting Bodies of Edible Fungi—A Comparison of Metabolites · [pmc.ncbi.nlm.nih.gov](https://pubmed.ncbi.nlm.nih.gov/)
- Dual Extraction vs Hot Water Extraction: Methods, Differences and Marketing Claims Explained · topshelfmushrooms.com
- Edible Mushrooms and Beta-Glucans: Impact on Human Health · [pmc.ncbi.nlm.nih.gov](https://pubmed.ncbi.nlm.nih.gov/)
- How to Read a Certificate of Analysis (COA) for Mushroom · shroomap.com
- Hot-Water vs. Dual Mushroom Extracts: What the Terms Mean · topshelfmushrooms.com
- Screening of beta-glucan contents in commercially cultivated and wild growing mushrooms · sciencedirect.com

For information only, not medical advice. Statements about supplements have not been evaluated by the Food and Drug Administration, and no product here is intended to diagnose, treat, cure or prevent any disease. Ask a doctor or pharmacist before starting a supplement, especially if you are pregnant, nursing or taking medication.



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Kristen produces the interviews at Seed to Capsule: the research, the supplier maps, the follow-up calls. She asks for the name of the farm early in every conversation, and writes it down before the founder can change the subject.
