

Features

Functional fungi: Getting to the root of mushroom drinks

Mushrooms are becoming increasingly popular as a functional ingredient, but crafting drinks with them is complex and the science remains shaky.

Jessica Broadbent | February 28, 2025

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Yay! mushroom drinks on sale at M&S. Credit: Maggie Broadbent

Mushrooms are blooming in the health world but they are a complex ingredient to use in product development.

From sourcing and extracting, to producing a nice-tasting product, to learning how to market them amid a dearth of scientific research – much stands in the way of this nascent category.

Saying that, mushroom drinks are slowly catching the attention of larger players. In January, UK national

retailer Marks and Spencer (M&S) launched a five-strong line of RTDs called YAY! Mushrooms, and prominent CBD brands either side of the Atlantic are also investing.

“There’s a big space [for mushrooms beyond traditional medicinal uses],” says Monique Simmonds, director of the commercial-innovation unit and deputy director of science partnerships at the Royal Botanic Gardens in Kew, London.

“If I was starting my career again, and I can see it’s going to happen with the younger mycologists that work in Kew, they will be looking at a whole range of uses of fungi, from plastic-eating fungi, to what are the next round of drinks?”

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Growing mushrooms

Asked their advice for mushroom-product developers, brand owners hammer home the importance of sourcing.

Cultivated mushrooms are grown on a mixture of substrates including wood and rice bags. It is thought the fruiting body – the part of the mushroom we see above ground – contains more of the beneficial active compounds than the mycelium – the ‘root’ system.

Noriyasu Okita, founder and CEO of Japan-based grower Hokkaido Reishi, pivoted from the air-conditioning industry in 2004 to set up a mushroom-

cultivation business using his expertise in temperature control.

Hokkaido Reishi grows its mushrooms on natural wood logs, which it says “yield large red reishi mushrooms of high quality” compared to the “small mushrooms of relatively poor quality” grown on things like sawdust.

For those who do not grow their own mushrooms, sourcing is not easy. A lot comes down to trust in the supplier which – with regulation lacking when it comes to quality and testing left down to brand owners – means there is plenty of potential for rogue produce on the market.

“The problem with the mushroom reality now is that the majority of products on the shelves are mushroom extracts, and it’s very difficult to know what’s in a mushroom extract,” says Tom Baxter, founder of UK organic mushroom producer Bristol Fungarium.

“Every time we’ve tested extract powders, the majority of the powder is maltodextrin, because you can use maltodextrin as a binder in the spray-drying process.”

Tara Seymour, founder of Australian brand Inner Atlas, advises: “Definitely look to a supplier that tests their mushrooms,” because “the scope [of supply] really does vary”. “We send every batch of our ingredient off for third-party testing.”

Finding supply

Inner Atlas sources its chaga mushrooms from Siberia, where they are wild harvested; the rest are “semi cultivated” in China (the world’s largest mushroom grower). Seymour spent around five years finding suppliers, from whom she says “we buy in smallish runs based on what’s available”.

“We did look into getting that established here in Australia,” she says. “But we don’t have the growing climate to be able to produce and naturally grow mushrooms unless in a temperature-controlled bed, and then we’d be looking at rice bags.

“There’s a place [for rice bags] because you can scale, and you can get things up quickly, but we’ve been very passionate about wood-grown mushrooms.”

In Europe, Bristol Fungarium’s Baxter says inroads have been made in the last 12 months as buyers forge connections with higher-quality suppliers in China. He advocates sourcing locally but admits: “It’s very difficult to compete with the Chinese and the scale they’re operating at. They’ve been doing it a long time.”

US-based Little Saints produces non-alcoholic mushroom RTD cocktails and spirits. Founder Megan Klein purchases mushroom extract from a California-based supplier and says “it’s getting a lot easier” to source in the US.

“I wanted to make sure that we had a really great supply-chain analysis, that the mushrooms weren’t full of metals and were as clean as possible,” says Klein. “I’m really crazy about ingredients sourcing.”



Little Saints’ Spiced Old Fashioned SKU, made with reishi mushroom. Credit:

Extraction technology

Mushrooms can be ground down straight into a powder or undergo an extraction process first.

Extraction is thought to increase the bioavailability (likelihood of absorption into the body) of the beneficial active compounds in mushrooms.

Hokkaido Reishi uses a patented hot-water extraction technique to create powder for its capsules, tea, coffee and fermented 'enzyme drink'.

The company says its extracts contain "one of the highest levels in the world" (60.6%) of the active compound beta-glucan – a polysaccharide thought to support blood sugar and cholesterol regulation, boost the immune system and protect the cardiovascular system.

Klein's supplier for Little Saint uses ultrasound to make a 70% beta-glucan extract. "It's very much more expensive than other extracts," Klein says, but for her the added cost was worth it to source such potent powder from a local supplier.

Many drinks brands' extracts seem to sit lower, around the 30% mark. UK player Dirtea says its mushroom extracts have "over 35%" beta-glucan content. This is about to be increased by a "new extraction technique", co-founder Simon Salter tells *Just Drinks*.

Getting the flavour right

Beverage developers must find a balance between using enough mushroom extract to have a functional effect, and not adding so much it tastes awful – as well as becoming too expensive to produce.

“If we take something like reishi, it is incredibly bitter. The compounds associated with the bitterness are actually those that are associated with some of its traditional, medicinal properties,” explains Kew’s Simmonds.

“So in that case, you have to think about the volume that you can use, but also what is it going to be combined with? That’s where I think the expertise of those that are involved in formulating the end product really comes [in].”

Many blend mushroom powders with other functional ingredients such as coffee, cacao, turmeric and matcha. This can improve flavour but also widen the health claims that can be made on-pack.

While these blends may increase the bioavailability of the mushroom extract, Simmonds says: “I don’t think there is enough scientific evidence to know.” She adds: “That doesn’t mean that doesn’t happen. It just scientifically needs to be evaluated in more detail.”



Hokkaido Reishi coffee. Credit: Hokkaido Reishi

Beyond mushroom coffee

Mushroom coffee has stolen the show in the nascent fungi-beverage space – led by Finnish trailblazer Four

Sigmatic, which was founded in 2012 and claims to have created the first commercial mushroom-coffee brand.

Dirtea's coffee powder is still its best-selling SKU but Salter highlights the potential for "alternative ways of [recreating the] caffeine kick", such as matcha, which "has a nice, gentle kick". Dirtea sells mushroom powders blended with matcha, cacao and chai and, in 2024, launched mushroom gummies.

In Australia, Seymour at Inner Atlas says the mushroom category has "exploded in the last year". "The cold, RTD beverages, not as much. I believe that's more a European and US market [thing]," she caveats. "But definitely in the cacao, coffee, matcha, hot-drink space mushrooms are really infiltrating here."

While Japan, like China, has a long history of taking mushrooms for medicinal benefits, Okita at Hokkaido Reishi says mushroom drinks remain a "niche product".

"Very few young people nowadays know about reishi or lion's mane but most older people do," he says. "In Europe and the US, the mushroom drinks I've seen have beautiful packaging, which I think is on the youthful side, so they can get attention from the younger demographic for mushrooms.

"However, in Japan, it is difficult to get the attention of the younger Japanese group because of the inherent concept that the mushroom-consuming group is older – the product design is skewed towards middle-aged and older people and there are no influencers promoting it through social media."

Choosing a mushroom

Lion's mane could be considered a gateway mushroom in those countries without a strong culture of mushroom eating.

There are of course outliers – like Latvia, where Baxter says the stinkhorn mushroom (*phallus impudicus*) is the most popular “by a country mile”.

Klein says lion's mane and reishi “are going to be the two main drivers” in the US, but anticipates producers will diversify “as the supply chain gets more robust”.



I think this idea that there are specific mushrooms for specific bits of the body is oversimplification, but I do appreciate it is the best way of marketing to get the consumer to buy.

Tom Baxter, founder, Bristol Fungarium

As well as their popularity, she chose these two mushrooms for Little Saints' drinks due to their supposed functional properties.

“Reishi has a mild, relaxing effect on your nervous system. It kind of takes the edge off – doesn't mean you fall asleep. Then lion's mane is more for cognition and focus, and makes you feel more alert, like that first Tequila where you feel a little smarter,” she says.

Salter highlights tremola's (or snow fungus) potential for taking market share in the future. “Tremola is a lovely, translucent mushroom which has the potential to offer inner and outer glow with a compound called tremella polysaccharide, which holds its weight in water 500 times more than hyaluronic acid. The potential there is absolutely fantastic,” he says.

Baxter says: “I think this idea that there are specific mushrooms for specific bits of the body is oversimplification, but I do appreciate it is the best way of marketing to get the consumer to buy.”

Cordyceps is one mushroom that can have an impact in “real time”. “It’s subtle, but it’s noticeable,” he says.

Though Bristol Fungarium’s focus is on research rather than developing consumer-facing products, Baxter is looking into launching cordyceps shots. These would be targeted at energy-drink users, like long-distance drivers.



Bristol Fungarium co-founders Henry Jephson (l) and Tom Baxter (r). Credit: Oliver Edwards

Dose

As well as the type of beverage and mushroom, another key – and complex – consideration is dose.

Large-scale human clinical studies on mushrooms’ benefits are scarce – even more so for drinks.

“I don’t think we know enough about the dose,” says Simmonds, who points out dose could vary from person to person, depending on factors like diet. “If you asked me how much reishi should be in a drink to give you a beneficial effect, I would say, actually, I don’t know.”

Moreover, marketing and design teams have to be incredibly careful about on-pack claims around the health benefits of mushrooms. M&S's range is case in point – its lion's mane “AM shot” says it can “kick-start your morning”, while the reishi “PM shot” is equally vague.

Consequently, ingredient information on packaging varies drastically – and has led to scepticism about the category. In 2024, UK consumer watchdog Which? included functional mushrooms in its list of “health products you don't need”.

“While they do have potential benefits, there isn't enough evidence yet to suggest they work – and the vast majority don't have authorised health claims in the UK,” the watchdog said.

This leaves R&D teams in no-man's land when deciding dose – and throws the category open to profiteering.

“It happened in the CBD world as well,” says Baxter. “Because their margins are so small, they can't put meaningful amounts of anything in. So whilst [NPD in mushroom products will] be good from a product-awareness perspective, I think people are going to start thinking it's utter bullsh*t because they'll be drinking these drinks and nothing will happen.”

Looking forward, drinks companies' R&D departments have a narrow line to walk. Create a product with a sub-standard mushroom extract – or simply not enough of an extract – and the long-term sustainability of the category is restricted.

However, with thoughtful product innovation, a bit more momentum in consumer understanding and some robust clinical research, mushroom drinks could bring brands long-term repeat custom.

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