

SPORE PRINTS

BULLETIN OF THE PUGET SOUND MYCOLOGICAL SOCIETY
Number 595 October 2023



PSMS ANNUAL WILD MUSHROOM SHOW

Derek Hevel

Here's a reminder that the annual Wild Mushroom Show is back this year and will again be held at Shoreline Community College located at 16101 Greenwood Avenue North in Shoreline in the Student Union Building. Doors will open to the public at noon on Saturday, Oct. 28, and at 10 am on Sunday, Oct. 29, but we will start the setup process on Friday.

To keep you informed, we are preparing a downloadable PDF with all the info you will want about the show. Check for the PDF on the main page at www.PSMS.org about two weeks before the show. Highlights of the PDF will include directions to SCC, parking info, admissions fees, lecture times, activities, and a feedback form.

The show is all at once a fund-raiser, a classroom, an eatery, a boutique, a garden, a laboratory, and a crafts project! Lots of different activities will recharge your interest in mushrooms. There will be lectures on a variety of mushroom topics, mushroom cooking/tasting, photos of mushrooms, commercial vendors, arts and crafts, and a cultivation table with oyster mushroom-growing kits. We're bringing back the glowing haunted house this year, so stop by to see the spooky fluorescent mushrooms of the PNW. All these activities help us introduce the public to the incredible diversity of mushrooms and other fungi.

The primary feature is our mushroom display, which includes hundreds of species in as many shapes, sizes, and colors of mushrooms as you can imagine. In order to create our display, we need everyone to get into the woods and bring back prime specimens of as many mushroom species as possible. If you hadn't noticed yet, the fall mushrooms are starting to pop. Beginning the week of October 23, please collect and bring in every mushroom you can find. Here are some guidelines for doing that:

Where to Collect

Find mushrooms on your own or organize a small group to collect at your favorite spots. We strongly encourage members to forage far and wide to collect those late specimens wherever they can be found. In early October, experts have suggested collecting display specimens in the foothills of Mount Rainier, the Olympic Peninsula, and the Washington Coast, but it is impossible to predict when and where our show mushrooms will flush. Also, don't forget those urban mushrooms! Look in lawns, gardens, and landscaping. Don't forget to pay special attention to fluorescent mushroom species for the glowing haunted house; species include *Hypholoma fasciculare*, *Phaeolus schweinitzii*, and some *Gymnopilus* species. If you can, please self-organize for a collecting trip in the week or two before the show. We're counting on YOU to make the display happen!

How to Collect

Before you go, stock up on plastic containers, foil, and wax paper bags to hold your specimens. Bring a garden trowel to dig if necessary to remove the entire mushroom intact, including underground structures. Then wrap each collection individually and put them in bigger cardboard boxes. Care for them all the way to the show because they must stay fresh and intact through Sunday.

For example, store smaller specimens separately in their own container with moss or duff, and mist (but not soak) them to keep them fresh and colorful. For geotropic mushrooms (those that quickly reorient their gills toward the ground), including amanitas, stand them upright in empty milk cartons so their stalks don't bend. Also, don't forget the little ones and the most common mushrooms, since everyone assumes someone else will bring them in. Better to have too many than none at all. Delicate inky caps should be collected on Friday or Saturday morning since they dissolve to ink so quickly.

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PSMS
Wild
Mushroom
Show



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CALENDAR

- Oct. 7 Field trip (see www.psms.org member's section)
- Oct. 10 Membership meeting, 7:30 pm, CUH
- Oct. 13 Field trip (see www.psms.org member's section)
- Oct. 16 Board meeting, 7:30 pm, CUH boardroom.
- Oct. 20 Ben Woo Foray, preregistration required
- Oct. 21 Field trip (see www.psms.org member's section)
-)Oct. 27–29 PSMS Annual Wild Mushroom Show, Shoreline Community College
- Nov. 4 Field trip (see www.psms.org member's section)
- Nov. 14 Membership meeting, 7:30 pm, CUH

BOARD NEWS

Carolina Kohler

Greetings, fellow PSMS members,

The rains are finally here, and we are feeling excited about fall!

At our last board meeting, on September 14th, we had the chance to go over some of the things the season has in store for us.

After receiving, as usual, the financial report from Treasurer Brenda Fong, Marian Maxwell went over the final details of the Ben Woo Foray. Then Show Chair Derek Hevel gave all the latest updates regarding our Annual Wild Mushroom Show coming up this October. We are all set up for another fantastic event!

Next, Peg Rutchik reported on how things are progressing for the task force working on the club's Policies and Procedures, and she introduced the first policy, which will now be sent out to the committees for review.

This was followed by a very engaging discussion on ways to improve the online experience for our members, ranging from the quality of our Zoom meetings to better accessibility for volunteers to find information and opportunities in our website.

There is a lot going on this second half of the year, and we will be back after our October board meeting to share more details.

Have a wonderful start to the season, and happy mushrooming!

MEMBERSHIP MEETING

Scott Maxwell

October—rain and dropping temperatures. This is a good sign for the mushroom season we are entering! Last year at this time the leaves on the ground were still crispy like potato chips. It's also a good time to have a membership meeting and share our mushrooming experiences. The general membership meeting on October 10, 2023, will once again be a hybrid including both in-person and Zoom at the Center for Urban Horticulture at the University of Washington.

This month we will be welcoming Alison Pouliot, who just happens to be in our area all the way from Down Under (Australia). Her trip to the Pacific Northwest is in part being sponsored by the Daniel E. Stuntz Foundation and is being hosted by Steve Trudell, PSMS Scientific Advisor. We want to thank the Stuntz Foundation and Steve for helping to make this opportunity available.



Alison Pouliot.

Alison Pouliot is an ecologist, author, and professional environmental photographer with a focus on fungi. Her work spans both northern and southern hemispheres ensuring two autumns and a double dose of fungi each year. Alison is actively involved in teaching, research, and conservation and has conducted over 800 fungus forays across many countries. She is the author of *The Allure of Fungi*, *Wild Mushrooming*, and *Meeting with Remarkable Mushrooms* (see www.alisonpouliot.com).

Alison's presentation is entitled "Meetings with Remarkable Mushrooms," which is also the title of her third book. In Alison's words: "Once overlooked in the Anglosphere, fungi are finally having their moment. Mycologists and mushroom seekers have always known their worth, but these exhilarating new poster organisms have captured the public imagination."

If she follows her latest book, we can hope to hear about fungi from Australia to our Cascade Mountaint. Elements of science, environmental interrelationships, aesthetics, indigenous wisdom, and outstanding fungal photography will likely be presented. Join us to hear Alison share stories of her travels across hemispheres

PSMS Wild Mushroom Show, cont. from page 1

For the naturalistic displays, please also bring organic matter like duff, grass, leaves, bark, and moss. Include a few leaves from the nearest trees or grass for the grass-inhabiting varieties, both for ID and for display.

Record Collection Details

Put all your finds from one location in one container and add a paper label with your name, phone number, and location. A slip of paper is enough! You can keep your secret edible locations to yourself since we are trying to feed science, not our stomachs. We ask for your name and phone number on the chance that a researcher may request further info, but the written location alone is invaluable.

Drop Off Your Mushrooms

Show receiving is on Friday evening after 4 pm and Saturday morning outside the Student Union Building at Shoreline Community College (enter the campus at the main southeast entrance and look for the PSMS signs). The receiving area will be clearly identified once you enter the campus. We'll be waiting for your mushroom deliveries!

Volunteering!

A huge Thank-You to all the wonderful people who have already signed up to volunteer to help with the show! You still have an opportunity to sign up to help! Register on the www.PSMS.org member's page under "Event Registration" or email volunteers@psms.com. This year, the volunteer shift options are organized by committee first, then by day and time.

FUNGUS SILVER LEAF DISEASE INFECTS INDIA MYCOLOGIST

Rich Co

<https://www.natureworldnews.com/>, Sept. 23, 2023

First Case of Silver Leaf Disease Reported in Humans

The silver leaf disease, caused by a fungus that was previously known to affect solely plants, was detected in a scientist who handled rotting materials and other plant fungi for a living. This case is said to be the first time for a this fungus infection to spillover to humans.

Several botanical species, including pears, roses, and rhododendrons, are cursed by the silver leaf disease. The fungus *Chondrostereum purpureum* can kill a plant by infecting its leaves and branches if it is not promptly treated.

Up until this year, the fungal illness was not thought to be a threat to humans aside from the potential loss of the occasional rose shrub.

However, a 61-year-old Indian mycologist appears to have developed a severe case of silver leaf disease in his own throat in what researchers believe to be the first case of its kind.



Chondrostereum purpureum in situ.

Henk Monster / Wikimedia Commons

This case offers a rare illustration of a pathogen presumably taking a tremendous leap across kingdoms and species.

Although just a small number of the millions of known species are capable of inflicting serious harm to humans, fungi do in fact cause several diseases in humans. Thrush, athlete's foot, and ringworm frequently settle in moist areas of the skin.

Fungi such as species of *Aspergillus*, which typically feed on rotting vegetation, can occasionally invade deeper areas of the human body, especially in patients with weakened immune systems.

Henk Monster / Wikimedia Commons



Chondrostereum purpureum, closeup.

The medical experts sought guidance from a World Health Organization fungal reference and research center, which was able to identify the odd suspect from its DNA because this particular infection didn't appear much like any of those.

Possible Cause of the Infection

Despite being a mycologist, the patient was unable to recollect working with this particular species recently.

However, he may have come into contact with decaying material and other plant fungi while working in the field, which could have been the cause of his sickness.

Any type of disease needs the proper equipment to settle within a host and begin multiplying. They not only require a way to get the necessary nutrients, but they also need a few coping mechanisms to deal with what is effectively a hostile environment out to destroy them with various killer agents and chemical weapons.

Because of this, it is highly uncommon for a fungus that has evolved to thread its hyphae through stems and leaves to succeed in doing the same within human tissue.

It is even more puzzling given that the patient in this case study appeared to have a completely functional immune system and showed no signs of being on immunosuppressant medication, having HIV, diabetes, or any other type of chronic illness.

SEARCH AND RESCUE EFFORTS CONTINUE FOR HAIDA GWAI MUSHROOM PICKER

Jeff Blagden

CFNR Network, Sept. 22, 2023

Haida Gwaii residents are being asked to avoid the Drill Main Forest Service Road, as rescue crews continue the search for a missing man.

69 year-old Richard Smith was reported missing on Wednesday, and was last seen picking mushrooms along the service road that morning.

Members of the Old Massett Fire Department were called in the next day and searched the area into the night to no avail.

They were joined the next day by Search and Rescue crews and members of both the Daajing Giids and Masset RCMP.

Smith is described as a 5 foot 7 inch First Nations man, weighing 143 pounds, with graying black hair and brown eyes.

THE UNWRITTEN BUT MOSTLY ACCEPTED ETIQUETTE OF MUSHROOM COLLECTING

Wren Hudgins

Why Rules?

A mushroom spot is a precious resource. It may represent months or even years of searching and many miles of walking. It may also represent hundreds of actual dollars spent in gas to get to trailheads or other forest locations, over time. Of course it's possible to just stumble onto a good spot five minutes after leaving your car, just as it's possible for you to win the lottery.



But we have to recognize the two percent rule, which I made up, but which is, I think, mostly true. This rule states that you will find those delicious mushrooms you seek in two percent of perfect habitat, with good timing, and zero percent of imperfect habitat. The mushroom spot then is precious because of scarcity. But since many species of mushrooms fruit in the same area year after year, that spot is precious also because it's a gift that keeps on giving.

So when someone shares the location of a spot with you, it's a significant gift. People don't do this easily or often; hence the secrecy which prevails in mushrooming. But if you are given such gift, how do you respond?

Who Owns a Mushroom Spot?

Glad you asked. The finder of the spot is considered the "owner" and the owner makes the rules. The owner may allow you to share the spot location with others, or perhaps one specified other, maybe a mutual friend, or may prefer you not share it at all. The owner may prefer that you only visit the spot with him or her, may allow you free access, or may want to be asked each time you'd like to visit the spot. It's a major violation to share the spot location with someone else without owner knowledge.

Of course a spot may have a number of owners, perhaps all unknown to each other, having discovered that spot independently. This is more likely to happen for spots near trailheads or heavily visited areas. If you are the recipient of such a gift, it's up to you to get clear on the owner's preferences and to respect them.

An exception to this rule applies for burn morels. Since those morels will not repeat abundant fruitings in years to come, that spot is a less valuable resource. I tend to freely give out burn morel locations, at least to guides inside the club, attempting to thank them for their service to the club.

This concept of "ownership" operates at smaller levels too. Let's say you are mushroom hunting with someone and that person whoops with delight upon finding a nice patch of chanterelles. You are only 30 ft away. What do you do? Well, what you DON'T do is rush right over and start picking, unless you are married to the finder, and even then, maybe not. You congratulate them, and if you are invited over, you may go. Even if invited over, don't take too many. If not invited, just continue your own hunting. They own that patch.

A tricky situation arises when you are hunting out in the woods and notice in the same area another mushroom hunter who is not in your group. In my experience in the woods, mushroomers encountering other mushroomers tend to be friendly but not chatty.

How much space to give them might depend on circumstances like how much good looking terrain there is and whether the other person is a recreational hunter or a professional hunter. Often you can tell the difference by looking at their mushroom container. If they are carrying a wicker basket, they are likely recreational. If a five gallon bucket, likely professional. As you may know, the professional hunter is making a living harvesting mushrooms in the woods, so there is risk of that person being more territorial about their hunting space. There have been conflicts but mostly in the long ago past. There have even been shots fired, but this was almost 20 years ago and I'm not aware of any deaths. Given that the professional hunter has much more at stake than the recreational hunter, I tend to be initially very friendly and quickly move away, giving them plenty of space.

Other Etiquette Guidelines

Moving away from the "finder equals owner" concept, there are other considerations recommended by etiquette. Such considerations dictate not picking every single mushroom in a patch, and not taking the really old or the really young. Instead of picking the very young, just enter a waypoint in your GPS so you can return to that spot in a week or 10 days. Don't disturb the ground and leave the forest a bit cleaner than you found it. I will sometimes wait until my buddies are looking and then I'll bend down and pick up that aluminum can. I'm conscious of my modeling effect.

These rules don't apply to everyone of course. I have a few regular hunting buddies and we have no secrets between us. Everything is shared. Sometimes at the end of the day we'll equalize the amount collected between us. This arrangement is more relaxed and tends to work best when the participants are similar in skill level, knowledge, and fitness.



Finally, let's close the circle here by reminding ourselves why we have etiquette in the first place:

Etiquette gives us guidelines for the default way of interacting with others so that we can show respect for them, reduce misunderstandings, and get along.

Sounds good to me.

HOW DOES THE AMATOXTEST™ WORK?

©Candace Bever, 2023

How do you know when a mushroom contains toxins? More specifically, how do you know when a mushroom contains the deadliest mushroom toxin, amanitin (aka, amatoxin). Morphology of a mushroom is certainly one (and the most preferred) route. But what if you could detect amatoxins with a simple test? Enter the AMATOXtest™.



Test kit.

The AMATOXtest™ is an easy-to-use, portable tool that can quickly determine the presence or absence of the toxin amanitin. It can identify the presence of as little as 10 parts per billion (equivalent to 10 cents out of

\$10 million) of amanitin in about 10 minutes from a rice-grain-size sample of a mushroom or in the urine of someone who has eaten a poisonous amanitin-containing mushroom. The test also works with dog urine, as dogs are known to indiscriminately eat mushrooms.

The AMATOXtest™ works like many clinical diagnostic tests, the most common being a pregnancy test and, more recently, a COVID rapid test. These diagnostic tests rely on antibody molecules that detect a specific target. In the case of the AMATOXtest™, the target is a toxin known as amanitin (or amatoxins). Antibodies bind/detect/recognize a specific target akin to how a specific key fits a lock. In this case, the lock is the antibody and the key is the target amanitin.

Amanitin is the deadliest mushroom toxin known to date. Some familiar mushrooms that produce these toxins are the Death Cap (*Amanita phalloides*), the Destroying Angel (*Amanita ocreata*), and others), and the Deadly Galerina (*Galerina marginata*).

If a person (or even a dog) were to eat a mushroom that contains amanitin, the toxin generally causes liver failure and possibly death. A single mushroom contains enough toxin to kill an adult. So, the warnings to properly identify a mushroom before eating it should be heeded with an abundance of caution.

Now, you might be wondering, since antibodies are used in the test to detect the toxin, and we know that our bodies make antibodies to protect us, can our body make antibodies to amanitin and protect us if the toxin gets inside our bodies?

No. It is true that antibodies are a powerful component of our body's immune response. But to start an antibody response, the target needs to be "large" (molecularly speaking). For comparison, amanitin is about 900 daltons (a molecular unit), but the smallest target that will induce an antibody response is about 10,000 daltons.

Let's revisit the analogy that amanitin is like a key in a lock. The key (call it 1 inch long) alone won't start the immune response. But if the key was on a large key ring (say 10 inches in diameter), then the immune system would be alerted and antibodies would be made. The key ring helps to present the key to an antibody. Without the key ring, no antibodies would be made.

In a mushroom, the amanitin is a free molecule—only a single key. However, by using some chemistry techniques, the amanitin can be attached to a larger molecule (i.e., a key ring) and then used to make antibodies in a mouse. The mouse antibodies are then carefully selected and used as the "lock" in this assay to specifically bind amanitin as the "key."

So, what do those mouse antibodies do in the AMATOXtest™? When a liquid sample of material is added to the test (the liquid sample can be juice from a mushroom or urine) the antibodies will bind to any free amanitin in the sample. If the sample contains amanitin, a single line (reddish colored band) will form in the window. If the sample contains no amanitins, then the antibodies will form two red lines in the window.

The following image shows the results of a test performed in March 2020. Tested were two fresh mushrooms: an *Amanita ocreata* (Destroying Angel) which contains amanitin and an *Amanita novinupta* (Blushing Bride) that does not contain amanitin.

The AMATOXtest™ is highly sensitive. That means it can de-



Actual AMATOXtest™ test results.

tect very, very, small amounts of amanitin. In fact, it detects just ONE nanogram of amanitin. For comparison, a whole mushroom contains a milligram of amanitin, which is equal to 1,000,000 nanograms. Urine (from an accidental ingestion of an amanitin-containing mushroom) on the other hand typically doesn't contain as much amanitin. The toxin flushes out of the body through urine, so the amount of amanitin in the body will drop over time. But, the race is on between how fast the toxin makes it out of the body before it starts to kill the liver.

Last little note about using this test on urine samples. No one, I repeat, *no one* should eat a mushroom to then test their urine with this test. Furthermore, even though a mushroom tests negative for amanitin, it might contain other toxins that you are not expecting. So, be sure to thoroughly identify all morphological characteristics of any mushroom you intend to eat.

A POTENTIALLY EFFECTIVE NEW TREATMENT FOR CHRONIC PAIN

<https://www.psychologytoday.com/>, Sept. 24, 2023

A recent study, published in the August 2023 issue of *Neuropharmacology*, examined whether psychedelic medicines (e.g., psilocybin, LSD, mescaline) may reduce chronic pain—and found preliminary evidence in favor of this conclusion.

Before discussing the study, let's first clarify some definitions.

What is Chronic Pain?

Unlike *acute pain*, which lasts a short time and is associated with tissue damage, *chronic pain* refers to pain that lasts or recurs for months or even years.

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Psychedelic Medicines Potentially Effective for Chronic Pain

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In the U.S., one in five adults has chronic pain. In other words, over 50 million Americans report experiencing ongoing pain-related symptoms on most days.

Many conditions can cause (or are associated with) chronic pain. Some examples are arthritis, fibromyalgia, foot pain, irritable bowel syndrome (IBS), knee pain, tension headache, hip pain, low back pain, old injuries, and previous surgery.

Can Psychedelics Help Treat Chronic Pain?

The recent paper, authored by F. Z. Zia from the National Institutes of Health and colleagues across the U.S., discussed another potentially effective treatment for chronic pain: psychedelics such as psilocybin (magic mushrooms), lysergic acid diethylamide (LSD), mescaline, and dimethyltryptamine (DMT).

Psychedelics, sometimes called hallucinogens, are psychoactive substances that induce altered states of consciousness and psychedelic experiences (e.g., 'shroom or acid trips). Though commonly used for recreational purposes, recent research on medical uses of psychedelics has been promising. Psilocybin, for example, has been found to reduce depression.

Reviewing the research, Zia et al. conclude that psychedelics appear to be helpful in the treatment of headache disorders (migraines, cluster headaches), cancer pain, phantom limb pain, and neuropathic pain. They note psychedelics might be “effective adjuncts” for the “management of chronic pain and comorbid conditions that frequently involve pain, such as PTSD, and major depression in cancer patients.”

However, there is no consensus on the *mechanisms* of how these drugs reduce chronic pain. Potential mechanisms may include serotonergic processes (with possible anti-inflammatory effects), dopaminergic processes, neuroplasticity, and changes in brain functional connectivity (e.g., changes to the default mode network).

More research is needed to answer questions about mechanisms but also questions related to safety and efficacy, optimal dosing (e.g., microdosing), the importance of mystical experiences for therapeutic benefits, psychedelics' effects on quality of life and co-occurring psychiatric disorders, etc.

Multimodal Approach to Chronic Pain

Psychedelics are a promising adjunct treatment—that is, as part of a *multimodal* approach, meaning an approach providing different modes of interventions at the same time. Why multimodal? Because the experience of pain has many dimensions:

- **Biological:** The extent of pain-causing illness/injury, genetic predisposition to pain sensitivity, other illnesses, and stress.
- **Psychological:** Emotions (fear, anxiety, anger, depression, guilt, shame), coping skills, the tendency to worry and catastrophize (e.g., believing the pain is unbearable and will never get better).
- **Social:** Supportive vs. critical attitudes, views, and responses of loved ones (parents, siblings, spouse) to pain, work demands, access to quality medical care, and cultural beliefs and norms.

- **Spiritual:** The pain patient's values, sense of meaning and purpose, belief in the possibility of healing (even in the absence of a cure), feelings of connection with all humanity and life, trust in God/other transcendent beings, etc.

As can be seen, one's perception of pain is affected by many factors. And for a treatment approach to be successful, it must address the various dimensions of pain. We should keep this in mind, as we study medical uses of psychedelics.

Summary

Chronic pain refers to pain that is long-lasting or recurrent.

According to preliminary evidence, a number of psychedelics appear to alleviate chronic pain, reduce distress and disability, and improve the quality of life in chronic pain patients.

However, psychedelics are not a panacea for chronic pain. Why? Because chronic pain, though usually described in terms of physical sensations, is affected by many biological, psychological, social, cultural, and spiritual factors: genes, personality traits, psychological states (e.g., guilt, fear of dying, or tendency to catastrophize), coping skills, loneliness, unemployment, cultural attitudes toward pain or disability, and sense of meaning and purpose in life.

Therefore, although psychedelics could have great potential therapeutic value, they are only one element of an effective treatment. To manage chronic pain effectively, one must treat the *whole person*—body, mind, and spirit. To think otherwise may result in disappointment with this drug or in psychedelic misuse and abuse.

LAS VEGAS MEN ARRESTED AFTER ATTEMPTING TO SELL 100 POUNDS OF MAGIC MUSHROOMS

Linsey Lewis

<https://news.yahoo.com/>, Sept. 16, 2023

LAS VEGAS - Two Las Vegas men were arrested on drug charges after they allegedly attempted to sell 100 pounds of psilocybin mushrooms, an arrest report said. Kyle Shurtz, 54, and Justin Slade, 48, face charges of trafficking a controlled substance greater than 400 grams, records showed.

The Drug Enforcement Administration Group 3 Task Force initiated an investigation of Shurtz in August. On Aug. 30, an undercover officer met with Shurtz, who provided the officer with 7 gm of purported psilocybin mushrooms, also known as magic mushrooms, as a sample for no charge. During this meeting, Shurtz discussed a future transaction for 100 pounds of psilocybin mushrooms for \$60,000, the report said.

On Sept. 14, Shurtz and the agent agreed to meet a commercial complex to complete the sale.

Around 3:30 p.m., Shurtz and the officer met in the parking lot of a gas station. When Shurtz arrived, he told the officer that he wanted to do the transaction at a warehouse since the product was packaged in eight large bags and it would ease the process since there was a money counter so they could verify the funds, the report said.

Shurtz also wanted the officer to meet his partner, Slade; however, the officer refused.

After brief negotiations, Shurtz left the area and went to a business in the same commercial complex. Detectives maintained surveillance of Shurtz who entered the building with an empty bag. Shortly after, he exited the building with the bag full, police said.

Shurtz then went back to the parking lot where the officer was. He showed the agent the backpack which had a large plastic baggie full of psilocybin mushrooms.

The agent then gave the arrest signal at which time Shurtz was taken into custody.

When detectives searched the warehouse, they found Slade inside and took him into custody as well.

On the floor of the warehouse, detectives found 10 large trash bags filled with about 96 individual plastic baggies containing psilocybin mushrooms, weighing a total of 48,330 grams, or about 106 pounds.

Detectives also found another duffel bag of psilocybin mushrooms with \$2,500 inside.

Both men were expected to appear in court on Tuesday, records showed.

FASHION CANNOT GET ENOUGH OF THE MUSHROOM JEWELRY TREND Amanda Chatel

<https://www.women.com/>, Sept. 20, 2023

If you've been out and about lately and spotted a lot of mushroom jewelry, your eyes did not deceive you. In the last few years, mushroom jewelry has been popping up everywhere. Last summer, mushroom-inspired clothing was all the rage, and more recently, Hailey Bieber was seen rocking 'shrooms too. We're definitely here for this mushroom trend.

Silver, gold, beaded, or crocheted, there's no wrong way to work this bold jewelry into your wardrobe. You won't only be making a statement with your fungi looks, but invoking meaning at the same time—which is what a great piece of jewelry should do.

Mushroom Rings

Historically, wearing rings goes beyond just letting those around you know that you're engaged or married. Rings have also been worn to declare one's status in certain cultures, especially those in powerful leadership roles. For example, whether or not you prescribe to the ideas of Catholicism, one of the most famous rings in the world is the Fisherman's Ring that's been worn by popes on their right hand since the 13th century. Catholics from all over the world head to the Vatican in the hopes of getting to kiss this ring so as to pledge their allegiance and respect to the religion, per NPR. The ring is considered so powerful that it is destroyed upon the pope's death.

While your mushroom ring may not have people chasing you down the street trying to kiss it, you'll still be wearing quite a statement piece. Choose a ring that's open and hugs your fingers, or stack those 'shroom rings loud and proud. Combine them with one of the many 2023 nail trends that have popped up this year, and you'll really have something magical on your hands.



Mushroom Earrings

What's great about earrings is you can keep them small and dainty or go big and bold. When you take your earring game to the height of mushrooms, you're not just getting in on the trend, but protecting yourself too. "The mushroom—for me—represents an ancient knowledge," jewelry designer Nicolas Atkins told *Vogue*. "Something primordial. Communication in a language we will never understand. The pendant comes from a simple place: protection from miscommunications and bad trips!"



Although this isn't to suggest that anyone should go out and get some "magic mushrooms" because they'll be protected, it's worth noting that the properties in these mushrooms are being used to treat a myriad of mental health disorders. The psilocybin in hallucinogenic fungi are making major strides in helping people manage their depression and anxiety. In fact, this could—perhaps on a subconscious level—be contributing to why mushrooms are having such a big moment right now.

Mushroom Necklaces

For some, mushrooms evoke a time of innocence and childhood, while for others it's a walk down memory lane to a time known as the 1970s. The '60s and '70s were rife with mushroom imagery due to the drugs that were being experimented with at the time, both in and out of CIA-funded studies. Apparently, it was a wild era for those who lived it, and being able to go back there via creating or wearing mushroom-inspired jewelry just hits differently. "For me, there is something quite nostalgic about them; it can go one of two ways, the '70s trippy route or the magical woodland creature direction, both of which fit quite nicely into the Fiorucci universe where anything goes," Fiorucci artistic director Daniel Fletcher told the global platform Refinery29.

Whether a long chain or snug up against the neck as a choker, there are a lot of ways to rock a mushroom necklace. You can go super playful like Dua Lipa or opt for something more sophisticated like a platinum mushroom chain.



Mushroom Brooches

If the word "brooch" has you thinking about your grandmother, hold up. Brooches are for everyone, of all ages, and of any generation. Also, really cool people wear brooches. Do we need to talk about the fact that Rihanna's red bodysuit for the Super Bowl halftime show included not one or two, but three brooches? Now think about how fantastic and on-trend you'd look with three mushroom brooches.

"I think at a time when we're experiencing such chaos and seeking 'wellness' in the face of it, mushrooms have become attractive because not only do they have health benefits for our bodies, but they're also mind-expanding," beauty editor Ella Riley-Adams told *Vogue*. "And they're beautiful to look at!"

Now that we're seemingly on the other side of the dark days of COVID, wellness is on the rise. Some of us are getting back to nature in our self-care routines and that may be shining a light on mushrooms and why they deserve a place in fashion.



cont. on page 8

Mushroom Jewelry, cont. from page 7

Mushroom Bracelets

According to WristCo, adorning bracelets have been around as far back as Ancient Egypt. It was about 5000 BCE when this type of jewelry became a fashionable accessory that everyone wanted to wear—no matter gender or age. Bracelets have been worn to ward off evil spirits and bad weather, to offer protection and healing, and of course to show platonic love as we see with friendship bracelets. Bracelets, in all their incarnations, are something that never goes out of style.



As you head into fall and start thinking about what types of jewelry and accessories you'll be adding to your wardrobe, consider getting in on the mushroom trend. No matter your personality, whimsical or serious, child-like or mature, there's a piece of mushroom jewelry out there for you. You can even go so far as to find a bracelet or earrings made out of mushroom leather, so you can really double down on the style of the moment.

FUNGAL NUTRIENT SENSING COULD SHED LIGHT ON OBESITY, CANCER

Krisy Gashler

<https://news.cornell.edu/>, Sept. 19, 2023

Lori Huberman, assistant professor in the School of Integrative Plant Science's Plant Pathology and Plant-Microbe Biology Section at Cornell University, has been awarded a \$1.9 million grant from the National Institutes of Health to study how fungi sense and use nutrients, basic research with potential applications for treatment of cancer, obesity, Type 2 diabetes, and fungal infections.

Humans, plants, animals, and fungi are all eukaryotes (organisms made up of cells with distinct nuclei), and past research in fungi has led to breakthroughs in treatment and prevention of myriad human illnesses. The majority of fungal research has been done with *Saccharomyces cerevisiae*, better known as nutritional yeast; roughly 20 percent of all biopharmaceuticals are derived from *S. cerevisiae*, including insulin and the vaccines for hepatitis and Human papillomavirus. *Saccharomyces cerevisiae* is relatively affordable and easy to manipulate, but it has a very narrow diet, only eating simple sugars, which limits its usefulness in understanding nutrient sensing in organisms with more complex diets, Huberman said.

To better understand how eukaryotes sense and use nutrients, Huberman will study two distantly related fungi that draw on a more diverse array of food sources: *Rhodospiridium toruloides*, a yeast that consumes a broader variety of sugars and other carbohydrates, and *Neurospora crassa*, a fungus that can withstand high heat and consumes dead plant material after forest fires.

"These two fungi are very distantly related, separated by hundreds of millions of years of evolution," Huberman said. "By studying similar questions in these two distantly related organisms, we can ask whether the mechanisms that we're identifying are happening in both organisms, which might imply that they're happening among all eukaryotes, including humans. And if their mechanisms

are distinct, then those pathways might be potential targets for treating fungal disease."

In humans, inaccurate nutrient sensing can lead to Type 2 diabetes and obesity. Nutrient sensing is also significant in cancer, as cancer cells absorb nutrients much more quickly than healthy cells as they grow and spread. Some chemotherapies already take advantage of this dynamic by changing available nutrients or preventing cancerous cells from taking up certain nutrients, Huberman said.

"Our hope is that by finding new pathways by which cells are regulating growth, and by better understanding how they are integrating signals about how much nitrogen, carbon, and phosphate are around, this could potentially help with finding new treatment for slowing the growth of cancer cells," she said.

Huberman will be collaborating with researchers at the University of California, Berkeley, who have developed a library of 300,000 *Rhodospiridium* mutants, each tagged with a unique DNA barcode. By exploring how different mutants respond to various nutrient conditions, Huberman and her colleagues will be able to test hypotheses about gene function. As part of the five-year NIH grant, Huberman's lab plans to create a similar library of *Neurospora* variants at Cornell.

The research is being supported by NIH's National Institute of General Medical Sciences, which "supports basic research that increases understanding of biological processes and lays the foundation for advances in disease diagnosis, treatment and prevention."

MUSHROOM ASTROLOGY

Bob Lehman, LAMS



Libra (Sept. 23–Oct. 22): You appreciate the ecological role of mushrooms and have a good sense of where different species can be found. However, you may never get to some of their habitats because you like easy activities and often do your mushroom hunting in city parks and residential areas. You are pleased to share your mushroom hunting territory with others (which is a good thing, since this is often other people's homes). You consider a foray successful if everyone has gotten something of value from it. You fret over identifications. You have a good feel for the edible qualities of mushrooms even though you may not do much cooking.



Scorpio (Oct. 23–Nov. 21): You love the mysteriousness of mushrooms. You plot your mushroom hunting strategy in advance, taking into account the motives and likely strategies of competing mushroom hunters. While others on a foray engage in small talk, you sneak away from the group to fill your basket from your secret spot. Aires may cover more ground, but you know how to get more out of the ground you cover. You don't mind Leo's boasting about his chanterelles because you know he'll be proud to give you some. You are willing to endure difficult conditions in order to find the mushrooms you want. You are fascinated by poisonous mushrooms.

See you at the October Wild Mushroom Show!