

SPORE PRINTS

BULLETIN OF THE PUGET SOUND MYCOLOGICAL SOCIETY
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UNIVERSITY OF MINNESOTA WORKS ON “ATTACK FUNGI” THAT COULD FIGHT EMERALD ASH BORER

Jennifer Bjorhus

Star Tribune, Mar. 10, 2021

Fungi are everywhere. They inhabited the planet long, long before humans showed up. So it's no surprise researchers found thriving communities under the bark of ash trees infested with the emerald ash borer.

<https://www.newspemr.gov/>



Emerald ash borer: larva, beetle, track.

What did surprise researchers at the University of Minnesota was the diversity—173 different

kinds of fungi. Some are in cahoots with the beetle and help kill trees, but others attack the beetle itself, feeding on the destructive insect and its eggs.

“It’s just incredible, the diversity that’s present there,” said UM forest pathologist Bob Blanchette who is leading the research funded by the university’s Minnesota Invasive Terrestrial Plants and Pests Center.

Although the insect-killing fungi are present in the affected trees, they aren’t naturally in large enough amounts to control the beetle.

cont. on page 4

CAN I SQUEEZE THROUGH HERE? HOW SOME FUNGI CAN GROW THROUGH TINY GAPS

<https://www.eurekalert.org/>, Mar. 16, 2021

TSUKUBA, JAPAN - Fungi are a vital part of nature’s recycling system of decay and decomposition. Filamentous fungi spread over and penetrate surfaces by extending fine threads known as hyphae.

Some fungi can penetrate the spaces between tightly connected plant or animal cells, but how their hyphae do this, and why the hyphae of other fungal species do not, has been unclear.

Now, a team led by Professor Norio Takeshita at University of Tsukuba, with collaborators at Nagoya University and in Mexico, has discovered a key feature that helps explain the differences among species. They compared seven fungi from different taxonomic groups, including some that cause disease in plants.

The team tested how the fungi responded when presented with an obstruction that meant they had to pass through very narrow channels. At only 1 μm wide, the channels were narrower than the diameter of fungal hyphae, which are typically 2–5 μm in different species.

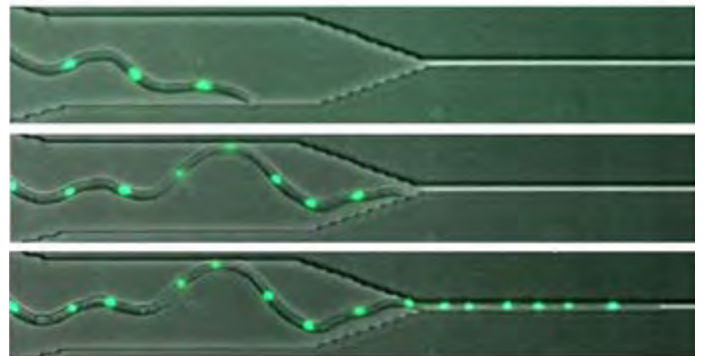
Some species grew readily through the narrow channels, maintaining similar growth rates before meeting the channel, while extending through it, and after emerging. In contrast, other species were seriously impeded. The hyphae either stopped growing or grew very slowly through the channel. After emerging, the hyphae sometimes developed a swollen tip and became depolarized so that they did not maintain their previous direction of growth.

The tendency to show disrupted growth did not depend on the diameter of the hyphae or how closely related the fungi were. However, species with faster growth rates and higher pressure within the cells were more prone to disruption.

By observing fluorescent dyes in the living fungi, the team found that processes inside the cell became defective in the fungi with disrupted growth. Small packages (vesicles) that supply lipids and proteins (needed for assembling new membranes and cell walls as hypha extend) were no longer properly organized during growth through the channel.

“For the first time, we have shown that there appears to be a trade-off between cell plasticity and growth rate,” says Professor Takeshita. “When a fast-growing hypha passes through a narrow channel, a massive number of vesicles congregate at the point of constriction, rather than passing along to the growing tip. This results in depolarized growth: the tip swells when it exits the channel, and no longer extends. In contrast, a slower growth rate allows hyphae to maintain correct positioning of the cell polarity machinery, permitting growth to continue through the confined space.”

As well as helping explain why certain fungi can penetrate surfaces or living tissues, this discovery will also be important for future research into fungal biotechnology and ecology.



A team led by the University of Tsukuba has found key differences that explain why some species of fungi can grow successfully through tiny gaps, whereas other fungi—typically those with faster growth rates—cannot squeeze through and stop growing. The trade-off between developmental plasticity and growth rate helps to understand how fungi penetrate surfaces or plant/animal tissues, with important implications for fungal biotechnology, ecology, and studies of disease.

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CALENDAR

Apr. 13	Membership meeting, 7:30 pm, via Zoom
Apr. 19	Board meeting, 7:30 pm, via Zoom
Apr. 20	<i>Spore Prints</i> deadline
May 2	Mushroom Maynia

BOARD NEWS

The board welcomes our new members for 2021–2023: Trustees Esther Marks, Joe Zapotosky, and Wren Hudgins, Secretary Su Fenton, and alternates Valerie Costa and Bruce Robertson. We also welcomed back returning President Randy Richardson and board members Scott Maxwell and Molly Watts. Wren is working with the field trip guides to create 10-minute videos on genera as a learning tool both for them and to be available on our website. The project will soon be available to the general membership. Randy is creating a habitat presentation to be available in time for morel season. An announcement will go out to the membership. Work is moving forward for a virtual Mushroom Maynia to be held the beginning of May. This is my last board report! Next month Su Fenton will take over as PSMS secretary. Thank you, all, for your support.



Luise Asif

Luise Asif

MEMBERSHIP MEETING

Marion Richards

The April meeting is Tuesday, April 13, 2021. As in previous months, it will be held via Zoom (online). The link will be available on the PSMS homepage at www.psms.org. We will begin with a brief mushroom ID session from Danny and Wren around 7:00 pm. The actual meeting begins at 7:30 pm PST. Hope to see you all there!

Our speaker for April is Cathy Cripps, and her topic is “Mushrooms in Cold Places: Rocky Mountain Peaks to the Arctic Tundra.”



Cathy in Finland.

The cold wind-swept tundra above tree line on alpine mountain tops and in the Arctic is not the usual place to look for mushrooms. These are some of the coldest places on earth. But the mushrooms are there: tucked under willows, nestled among mosses, lying exposed in meadows, and poking up on bare wet soil. These cold-hardy fungi play critical roles as decomposers and nutrient gatherers for alpine plants in these extreme environments. Their diversity is surprising given the harsh conditions. This talk will display these Arctic and Alpine beauties in their natural habitats primarily in the scenic Rocky Mountains and the open landscapes of the Arctic and discuss how past glaciation has influenced their distribution.

Cathy Cripps is mycologist and professor at Montana State University where she teaches and does research on fungi. She earned her BS from the University of Michigan and PhD from Virginia Tech with Dr. Orson Miller. Her research on mushrooms that survive in Arctic and alpine habitats has taken her to Iceland, Svalbard, Norway, Greenland, the Austrian Alps, and Finland. She is co-author of *The Essential Guide to Rocky Mountain Mushrooms by Habitat*, editor of the *Eighth International Symposium on Arctic-Alpine Mycology* (ISAM 8), and has authored numerous scientific papers. With over 40 years of experience collecting mushrooms, first as an amateur when she lived in a cabin in Colorado and later as a professional leading forays and teaching field classes in Montana, her love and enthusiasm for the Rocky Mountains and its fungal creatures runs deep.

NO SPRING FIELD TRIPS

Brian S. Luther

Because we’re just not far enough along getting COVID-19 under control, once again, there will not be any spring field trips this year. This will be the second year we’ve had to cancel the spring mushroom field-trip season, but with so many people having been vaccinated, or about to be, there’s “light at the end of the tunnel.” I’ve received many messages from members lamenting the loss of the spring and fall field trips. Assuming most everybody gets fully vaccinated and the medical experts also give the OK for larger groups to mingle, there’s a good chance I may be able to schedule some fall 2021 field trips. This may be wishful thinking at this point, but time will tell as we get closer.

Pam and I have been doing the research and scouting for new field trip venues, and have some good potential candidates. These are locations we’ve never been to before and we’re excited to try some out in the future. In the meantime, keep your guard up, get vaccinated when it’s your turn, stay safe, and happy mushroom hunting.

CALL FOR VOLUNTEERS - MUSHROOM MAYNIA

Luise Asif

Mushroom Maynia will be held May 2, 2021, and again will be a virtual event. Following is Mushroom Maynia Chair Jeremy Collison's wish list.

- *Video/Photo editing.*
- *Mushroom surveyors:* Anyone willing to take walks around local parks and forests to take photos for us to gather more information about what is fruiting and where.
- *Stories:* Submissions for spring mushroom foraging stories. These could be written, video recorded, photos, or joining a group discussion.
- *Home cultivators* interested in sharing photos, videos, or their experiences growing mushrooms - Have you tried starting a mushroom garden? - Have you built a grow chamber? - Do you grow in tubs? Logs?
- *Mushroom expertise:* Creating a video using topographic maps like Gaia GPS or onX - Experienced outdoor enthusiasts interested in sharing their favorite items to pack for mushroom hunts.
- *Culinary videos:* Favorite mushroom dishes.
- *Uploading finds to iNaturalist:* There will be experts' IDs but Jeremy would like to encourage novices to dip their toes into casual identification in iNaturalist. Simple things like categorizing mushrooms into broad taxa like basidiomycota or identifying some of the most recognizable species/genera.

If you are interested in helping, contact Jeremy Collison (jeremy-collison@gmail.com) or volunteers@psms.org.

MUSHROOMS THAT THRIVE IN DECAY INSPIRE INDIAN DESIGNER'S SHOW

*zenger.news International, via
<https://jacksonvillefreepress.com/>, Mar. 22, 2021*

NEW DELHI - Indian fashion designer Rahul Mishra's schedule does not leave him with much time for television. So, during the pandemic, he made up for the deficit by watching "David Attenborough: A Life On Our Planet" five times.

The 2020 documentary, a "witness statement" by British natural historian Sir David Frederick Attenborough on the condition of our planet, and how it may be saved, left him disturbed, yet hopeful.

"The biggest takeaway from the documentary for me was that the planet if left undisturbed, has the ability to revive and regenerate, even after the destruction we have wreaked on it," Mishra told *Zenger News*.

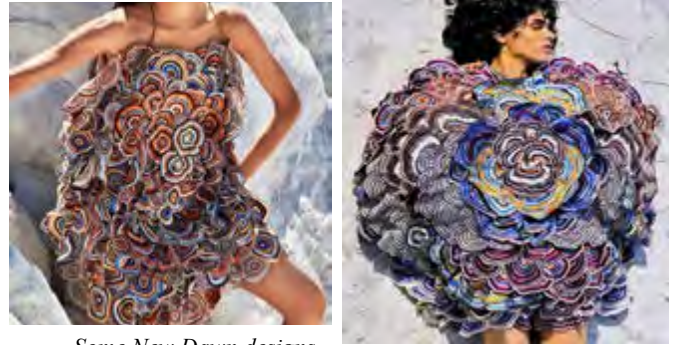
It revived in him a childhood memory of a grand old tree in his hometown, the village of Malhausi in the northern Indian state of Uttar Pradesh, that had to be felled because it was destroying a wall of his house.

"I was quite distraught at the time because the tree had been cut. However, after a few days, I noticed some giant mushrooms sprouting from the deadwood. Soon, the fungus had colonized

the entire tree trunk, creating an ecosystem of living breathing organisms. The mushrooms had made the tree come back to life."

This ability of mushrooms to thrive in death and decay and foster regeneration inspired the designer to create a Spring Couture 21 line for Paris Haute Couture Week 2021 called "The Dawn."

Presented as a fashion film for a virtual showing in January, the models wore 3D mushrooms, each painstakingly hand-tacked to a tulle and silk organza garment with an embroidered tree-bark texture.



Some New Dawn designs.

The film was shot in a junkyard for marble waste in the northern Indian state of Rajasthan, the stark, pristine white landscape serving to highlight the absence of life. The models posed against this inhospitable backdrop like vibrant mushrooms that had survived and bloomed against the odds.

"So much to grasp about Rahul Mishra's collection—starting with the Indian designer being able to find a snowy white background of a dumping ground in his country—known for its intense mixes of color. But the shades and patterns in his collection added layers of imagination from the dawn light to the vivid patterns," Suzy Menkes, British fashion critic and former editor of *Vogue International*, wrote in an Instagram post.

ADD SOME MUSHROOMS TO YOUR MUG

Ashlen Wilder
<https://thespoon.tech/>, Mar. 13, 2021

Califia Farms, which makes non-dairy milk, creamer, yogurt drinks, cold brew coffee, announced a new milk product this week.

The new product is a barista-style oat milk that is blended with *Cordyceps* and Lion's Mane mushroom powders. Apparently, the mushrooms do not affect the naturally sweet flavor of oat milk, but just add the supposed health benefits of these mushrooms. One 32 oz. carton retails for \$5.99, and can be found on the company's website and at Whole Foods.



Emerald Ash Borer, *cont. from page 1*

Blanchette's team is studying whether any of the "attack" fungi could be harnessed to effectively fight the invasive beetle threatening nearly 1 billion ash trees across Minnesota. Their findings were published last month in the journal *Fungal Biology*.

Rachel Coyle, the city of St. Paul's urban forester, called the research "important" and said she's cautiously optimistic it could yield a new tool.

"There really aren't a lot of management options for the emerald ash borer, unfortunately," Coyle said. "It's exciting to hear that they've done something that could potentially work."

Over the years, the Minnesota Department of Agriculture has released more than 600,000 parasitic wasps in infested areas around the state—including along the Mississippi River in St. Paul—to see whether they can control the beetle's spread. The wasps won't be used on boulevard trees in St. Paul, Coyle said.

They're still not sure the wasps work, said Jonathan Osthus, a research scientist with the state agriculture department. The ash borer is a tough beetle, he said.

The fungi Blanchette's team is focused on are micro fungi. They don't have big fruiting bodies like the bright-orange chicken of the woods, the morels, or other wild mushrooms associated the forest.

The fungi follow the emerald ash borer into trees through the wounds the beetle creates. The beetle's larvae chew the tree's inner bark, leaving long snaking channels called "galleries" in the inner bark, called phloem, that disrupt sap and water.

The fungi thrive in those channels and on the phloem and wood around them.

Blanchette's crew took fungi samples from Minnesota trees, incubated them in Petri dishes, isolated them, and sequenced the DNA. Now they know exactly which fungi follow the beetle around.

They found three main types of fungi: those that cause cankers (dead spots), those that cause rapid decay of the wood, and, most importantly, entomopathogenic fungi that attack insects.

Sofia Simeto, a Ph.D. candidate in forest pathology, has been in the lab with a pipette inoculating the tiny eggs of the emerald ash borer with different fungus spores to see which ones are most effective in preventing larvae from developing. The team will also study which ones are effective against the larvae and adult beetles.

Some are very effective at preventing larvae from hatching, Simeto said.

One of the fungal pathogens they found, called *Beauveria*, has shown potential in research elsewhere to kill adult emerald ash borer beetles.

In nature, the fungi kill the beetles by penetrating the insect's cuticle via specific enzymes. Once they are inside, they can produce toxins and grow very rapidly.

"They colonize the whole insect," Simeto said. "They take the nutrients from the whole insect body and at the very end, which is the last part of the horror movie, they go out again and spread spores."

Simeto likened it to a common kitchen scenario with mold growing on your apple.

Blanchette said they'll need to do larger-scale evaluations over the next few years to find the right fungi. After that, a company could develop a biocontrol product.

"Once we have something," he said, "I think it would go pretty quickly."

The fungi research has been financed by the lottery-funded Minnesota Environment and Natural Resources Trust Fund.

RECENT DEVELOPMENTS IN THE MACROFUNGI COLLECTION AT THE UW HERBARIUM

**David Giblin,
Herbarium Collections Manager & Research Botanist**

For over a century professional and amateur mycologists have deposited macrofungi specimens at the University of Washington Herbarium of the Burke Museum. Our 75,000+ specimens document the diversity and distribution of the region's macrofungi, and some are the basis upon which species new to science have been published. Over the past decade we have modernized the collection and readied it for future expansion through federal and local grants, philanthropic gifts, and internal support from the University of Washington.

Federal Grants to Digitize and Improve Storage Conditions

From 2012–2015 we received National Science Foundation funding to digitize (image, database, and assign latitude and longitude values) our macrofungi specimens. The 70,000 specimens digitized are freely available online at the Consortium of Pacific Northwest Herbaria and MycoPortal:

<https://www.pnwherbaria.org/data/search.php>
<https://mycoportal.org/portal/>

Specimen loan requests increased significantly with our specimen records online. In 2019 we received an Institute for Museum and Library Services grant to purchase and install 28 new double-door herbarium cabinets in the new Burke Museum building. The cabinets provide expansion space for the collection (1,000+ specimens are added annually).

*Digitized specimen
of *Inocybe stuntzii*
from which DNA
has been extracted.*



Local Grants Supporting the Mycology Collection

The Daniel E. Stuntz Memorial Foundation has provided several recent grants to improve collection storage and to support DNA barcoding of hundreds of specimens. Storage improvements include new boxes for containing and protecting specimens previously stored in Ziploc bags and the purchase of 1,000 custom-sized boxes for organizing specimens within cabinets. The Peg and Rick Young Foundation has also generously provided funding to hire undergraduate assistants for the collection.



New custom-sized boxes to replace old copy paper box lids.



New steel cabinets in the basement of the Burke Museum.

Looking to the Future

For over a century the herbarium has had at least one faculty member devoted to mycological research. That situation will change in the not-too-distant future when Professor of Biology and Adjunct Mycology Curator Dr. Joe Ammirati retires. Not having a Ph.D.-level mycological researcher active here is unacceptable given the importance of fungi to Pacific Northwest ecosystems and the interest level among non-professionals here.

In 2019 we partnered with the Daniel E. Stuntz Memorial Foundation to fundraise for a half-time mycological researcher here. The position will be supported by distributions from the Herbarium's Daniel Stuntz and Patrice Benson Endowment for Mycology. To date we have raised in excess of \$500,000. This past December PSMS generously provided a \$10,000 challenge match as part of an appeal campaign, and I am thrilled to report that donations totaled \$38,000.

There is still time to support this initiative. To donate by check, make it payable to the University of Washington Foundation with "Mycology Endowment" in the memo line and mail to Phoebe Keleman, Burke Museum, Box 353010, Seattle, WA 98195-3010. You can also donate online at

<https://www.burkemuseum.org/support/give/plants-and-fungi-donation-form>.

Scroll down to "Daniel E. Stuntz Memorial Foundation Endowed Fund" to make your gift.

With new cabinets, expanded storage space, and improved specimen-storage conditions, we feel the collections are well suited to support continued research and education. A permanent research mycologist working in the collections will solidify these efforts.

DEADLY FUNGUS BEHIND HOSPITAL OUTBREAKS IS FOUND IN NATURE FOR THE FIRST TIME

Aimee Cunningham

<https://www.sciencenews.org/>, Mar. 16, 2021

A deadly fungus that seemed to spring up out of nowhere in hospitals has been found in nature for the first time.

Researchers isolated the yeast *Candida auris* from two sites on the Andaman Islands in the Indian Ocean. The discovery suggests that *C. auris* was an environmental fungus before it was identified as a human pathogen, researchers reported online March 16 in *mBio*.

It was a real puzzle as to where *C. auris* came from when it began appearing in patients and clinics, says Christina Cuomo, who

studies fungal pathogen evolution at the Broad Institute of MIT and Harvard and was not involved in the study. "It's the first clue as to where else it might be."

Candida auris emerged as a human pathogen on three continents in the early 2010s. The yeast has since been named a public health threat for its ability to cause dangerous, sometimes fatal infections that are resistant to many antifungal drugs. *Candida auris* spreads between patients—usually those already seriously ill—in hospitals and other health care facilities, causing infections of the bloodstream, gut, or other organs. More than 1,600 cases have been reported in the United States as of January 19, according to the U.S. Centers for Disease Control and Prevention.

THE CURSE OF THE ZOMBIE SPIDERS!

<https://www.uksafari.com/>

If you're one of those people who thinks that False Widow spiders are (ahem) poisonous, or worse still, you're worried they are out to get you, then you're advised to click away right now. This story is not for the fainthearted or feeble-minded. Try the *Daily Mail* instead.

What are Zombie Spiders? Quite literally they have four feet in the world of the living and four feet in the world of the dead. With the meager bit of life they have remaining inside them they silently stagger about, knowing that their cursed days on earth are severely numbered. Like bad apples they are rotting from the outside in, and soon their ghostly white furry bodies will be hanging lifeless from little silken threads, gently twisting and turning in the breeze.



Dick Amos

Zombie spider.

What malevolent fate has befallen them? What fiendishly evil sorcery can possibly have taken control of their bodies? The villain here is the white fur which you see surrounding their bodies. It's an entomopathogenic fungus, which is a type of fungus that affects invertebrates.

The Cellar Spider (*Phlocus spp.*) seems particularly prone to infection because it lives in the damp environments where this fungus thrives. Once the fungus is established, the spores from the fungus rapidly infect other spiders nearby.

For a while the infected spiders are able to live on in a zombie-like state enveloped by the fungus. But slowly and surely the fungus consumes their living tissue and kills them. The only tolerable thing about this murderous fungus is that it's harmless to humans.

Well almost.

Once the spider's body has succumbed to the fungus, it's tormented spider soul is released into the world. Then when you are sleeping these Ghost Spiders (*Pholcus sanctus*) rise up and march into your ear canal where they lay their eggs. When the zombie spiderlings hatch out they feast on your brain until they reach adulthood then they climb out through your eye sockets and go in search of their next victims.

cont. on page 8

FUNGUS IN FOOD STYMIES CROHN'S DISEASE INTESTINAL HEALING

Washington University in St. Louis
<https://www.futurity.org/>, Mar. 15, 2021

According to new research, a yeast in foods such as cheese and processed meats can infect sites of intestinal damage in mice and people with Crohn's disease and prevent healing. The new study also shows that treating infected mice with antifungal medication eliminates the fungus and allows the wounds to heal.

Fungus Lives in Fermented Foods

Crohn's is a subtype of inflammatory bowel disease. As the name suggests, it is driven by chronic inflammation in the digestive tract and primarily treated with immunosuppressive medications. Crohn's patients endure repeated cycles of gastrointestinal symptom flare-up and remission. During a flare, their digestive tracts are dotted with inflamed, open sores that can persist for weeks or even months.

To understand why intestinal ulcers take so long to heal in some people, Jain and senior author Thaddeus Stappenbeck, formerly at Washington University and now at the Cleveland Clinic, studied mice whose intestines had been injured.

By sequencing microbial DNA at the site of injury, they discovered that the yeast *Debaryomyces hansenii* was abundant in wounds but not in uninjured parts of the intestine.

People acquire the fungus through their food and drink, Jain says. *Debaryomyces hansenii* is commonly found in all kinds of cheeses, as well as sausage, beer, wine, and other fermented foods.

Further experiments showed that introducing the fungus into mice with injured intestines slowed down the healing process, and that eliminating *D. hansenii* with the antifungal drug amphotericin B sped it up.

Crohn's Disease Wound Healing

People with Crohn's disease carry the same fungus as the mice. Jain and Stappenbeck examined intestinal biopsies from seven people with Crohn's disease and 10 healthy people. All seven of the patients harbored the fungus in their gut tissue, as compared with only one of the healthy people.

In a separate analysis of 10 Crohn's patients involving tissue samples of both inflamed and uninflamed areas of the gut, the researchers found the fungus in samples from all of the patients but only at sites of injury and inflammation.

"If you look at stool samples from healthy people, this fungus is highly abundant," Jain says. "It goes into your body and comes out again. But people with Crohn's disease have a defect in the intestinal barrier that enables the fungus to get into the tissue and survive there. And then it makes itself at home in ulcers and sites of inflammation and prevents those areas from healing."

The findings suggest that eliminating the fungus might restore normal wound healing and shorten flare-ups. While the drug amphotericin B was effective at eliminating the fungus in mouse studies, it is not widely used in people because it can only be given intravenously. The researchers are working with chemists to develop an effective antifungal that can be taken by mouth.

They also are studying whether there is a link between diet and the amount of the fungus in people's digestive tracts.

"Crohn's disease is fundamentally an inflammatory disease, so even if we figured out how to improve wound healing, we wouldn't be curing the disease," Jain says. "But in people with Crohn's, impaired wound healing causes a lot of suffering. If we can show that depleting this fungus in people's bodies—either by dietary changes or with antifungal medications—could improve wound healing, then it may affect the quality of life in ways that we've not been able to do with more traditional approaches."

The Crohn's & Colitis Foundation, Lawrence C. Pakula, IBD Innovation, the National Institutes of Health, the US Department of Veterans Affairs, and the American College of Gastroenterology funded the work.



Heallo Gastroenterology

*Have Crohn's disease?
Slow down on processed meats and cheeses.*

THE BLOB ON THE INTERNATIONAL SPACE STATION

Tad Fisher

<https://www.insidewalessport.co.uk/>, Mar. 19, 2021

A blob, a curious creature that is neither an animal, nor a plant, nor a fungus, will be cultivated on the International Space Station (ISS) under the watchful eye of French astronaut Thomas Pesquet.

Composed of a single cell, the slime mold *Physarum polycephalum*, commonly called "the blob," is a separate living species: without the mouth or brain, it eats, moves, and has amazing learning abilities.

Several samples will be hosted at the Space Station (ISS). The goal is to see "if the blob behaves differently in space" and to study "the effects of microgravity and radiation on its evolution," details the French space agency CNES.

As part of its "Alpha" mission, Pesquet, who is scheduled to fly to the ISS on April 22, 2021, will be responsible for "waking it up" and photographing its development according to two protocols: One will observe two samples in a food-free environment; the other will involve two others with multiple sources of food.

CNES and CNRS invited 2,000 schools, colleges, and high schools to join this "educational experience" and to "compare their results with the results achieved" in the classroom.



*Physarum polycephalum
growing in the wild.*

Hans-Günther Döbereiner

MUSHROOM-BASED LEATHER BAGS BY HERMÈS: WOULD YOU BUY ONE? Isha Ebrahim

<https://sg.asiatatler.com/>, Mar. 13, 2021

Luxury leather maison Hermès will be producing their Victoria travel bag with a lab-grown alternative material made from mushrooms.

As classic as the Hermès may have represented itself over the years, the French leather house is breaking traditions with their release of a mushroom-based alternative leather and entering the field of vegan materials.

They will be testing the mushroom-based leather on their Victoria travel bag, whilst still offering their regular products, creating a variety of products that cater to a larger audience.

Hermès has recently announced their new partnership with MycoWorks, a California-based start-up that has been funded by various investment companies and celebrities such as John Legend. MycoWorks has patented their technology involving mycelium: an arrangement of strands taken from the roots of mushrooms, which are then reproduced as the components of leather.

By introducing this partnership, the French luxury brand is highlighting its awareness of how today's audience is more conscious about what brands represent.

Vegetable or plastic leather has been an option for generations now, but innovation remains as research into finding new ways to bring in high-quality non-animal materials continues, alongside a need to discover more environmentally friendly processes in the fashion industry.



Victoria Travel Bag.

Having said that, the Victoria travel bag will be available in stores the end of 2021, as an add-on to the collections, not a replacement. But it's a large step toward change and embracing innovation in the fashion industry.

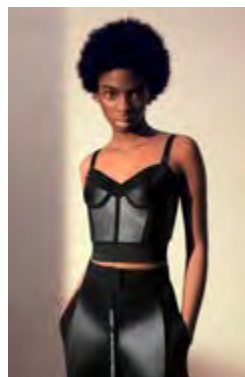
STELLA MCCARTNEY UNVEILS FIRST GARMENTS MADE FROM MYLO, A FUNGUS-BASED FABRIC Danielle Wightman-Stone

<https://fashionunited.in/>, Mar. 3, 2021

British fashion designer Stella McCartney has unveiled the first-ever garments made with Mylo, a vegan, sustainable, animal-free leather alternative made from mycelium, the infinitely renewable underground root system of fungi, developed by California-based Bolt Threads.

McCartney has used Bolt Threads' trademarked Mylo fabric for two garments, a black bustier top and utilitarian trousers. Both were handcrafted from panels of the mycelium-based material laid on recycled nylon scuba at the brand's atelier in London.

Mylo bustier and trousers.



Stella McCartney

The sporty styles have been designed to showcase McCartney's signature dichotomy of feminine and masculine attitudes in line with its summer 2021 and autumn 2021 collections.

While McCartney may be the first luxury house to unveil garments created with Mylo, the British designer states that the two pieces are not for sale but added that she has plans to integrate the leathery fabric into future collections.

DOG SNIFFS OUT ROT IN 18TH CENTURY U.K. ORANGERY

<https://www.bbc.com/>, Mar. 19, 2021

A specially trained sprocker spaniel, a cross between an English Springer and a Cocker Spaniel, has been brought in to help sniff out dry rot at an 18th Century building that is currently undergoing refurbishment. The rot flourishes where there is moisture and leads to decay and deterioration of timber. It is a kind of fungus and has a distinct "mushroomy" odor.

The rot in Camellia House at Wentworth Woodhouse, Rotherham, is at an early stage and cannot be detected by humans. Pip the "rothound" has been trained in techniques similar to drug and explosives dogs, smelling out the rot before it causes extensive damage.

Rot-sniffing dogs like four-year-old Pip undergo 18 months of training so they can then indicate to handlers when they think they have detected dry rot. Isabel Mar, Pip's handler, said: "Their sense of smell is absolutely amazing."

Mar, a specialist surveyor from Hutton and Rostron, one of only two companies in the UK that use dogs to help sniff out rot, said: "To Pip, it's all a game and that's very much how we want it to be.

"It's just a question of getting the dog used to a game of hide and seek." As Pip sniffs out the dry rot, she is then rewarded with a toy to associate the smell of the rot with play.

Mar said: "When I first get her out the van and show her her high visibility harness, she jumps up because she knows we're going to play her favorite game.

"I would go in with Pip and do an initial sweep and if Pip indicates by lying down, I'll tell my fellow surveyors who will do further investigation in that area."

Camellia House, on the grounds of Wentworth Woodhouse, is being restored by a preservation trust to bring the derelict building back into use. The space is being taken back to its original use when in 1738 it was an orangery with a tea room.

It was created for Lady Rockingham, wife of the 1st Marquess, to entertain her guests in the grounds of the stately home.



Pip and handler Isabel Mar at the Camellia House.

Simon Hulme

Zombie Spider, cont. from page 5

April Fool! We just made that last bit up...or did we?

CRISPY DEHYDRATOR MUSHROOM CHIPS

<https://healthhomeandhappiness.com/>

Sometimes you just need something crunchy and savory. It's tempting to reach for tortilla or potato chips, but with this recipe you'll never desire to again! Here we quickly slice mushrooms (I buy from Costco) in a food processor, toss them with seasonings, and then dehydrate them to crispy crunchy perfection.



Even the kids love them! The texture totally changes, and the mild mushroom flavor is perfect complement to so many savory flavor combinations. If you're feeling adventurous, mix up some of your favorite herb combinations and try them out. Below, I have some suggestions that we've loved.

Ingredients

- 1 lb button mushrooms with nice thick caps (about 4 cups)
- 1 TBs lemon juice
- ½ tsp sea salt

- ½ tsp powdered garlic
- ½ tsp dried parsley or 1 TBs fresh

Procedure

Trim the end off the mushroom stems if desired, but keep the stems attached. Use a food processor with a slicing blade or a knife to slice mushrooms into thin slices, about 1/8 in. thick.

Place mushroom slices in a large bowl. Top with lemon juice, sea salt, powdered garlic, and parsley. Use your hands to gently toss to distribute the seasoning evenly without breaking up the mushrooms.

Place a dehydrator tray over the sink and then use a large spoon, or just gently scoop from the bowl, about half the seasoned mushrooms. Spread evenly over the dehydrator tray; they can be touching but shouldn't be piled to allow for even air distribution.

Repeat with the other half of the mushrooms.

Dehydrate on high for 4–6 hours, or until crisp.

Serve, or keep in an airtight container once cooled.

Other flavor combination ideas:

- Smoked paprika and lemon juice
- Lemon pepper and lemon juice
- Black pepper and sea salt
- Apple cider vinegar and sea salt
- Cayenne pepper, honey, and lemon juice

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