

SPORE PRINTS

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Number 551 April 2019



SOUTH AFRICAN FUNGUS HOLDS BLUEPRINT FOR RECYCLING

lol.co.za, Feb. 2019
via *The Spore Print*, L.A. Myco. Soc., Mar. 2019

Cells of the wood-eating fungus Coniochaeta pulveracea exhibit both yeast- and fungus-type characteristics while breaking down twigs from an Acacia tree.

CAPE TOWN, South Africa - *Coniochaeta pulveracea*, a relatively unknown fungus accidentally found growing on an Acacia tree in the Northern Cape, has emerged as a voracious wood-munching organism with enormous potential in industries based on renewable resources, according to Stellenbosch University.



Coniochaeta pulveracea.

The first time someone took note of *C. pulveracea* was more than 200 years ago, when South African-born mycologist Dr. Christiaan Hendrik Persoon mentioned it in his 1797 book on the classification of fungi. Now *C. pulveracea* has had its whole genome sequenced by microbiologists at Stellenbosch University.

Prof. Alf Botha, a microbiologist in the Department of Microbiology at the university, said in the age of biotechnology, biofuels, and the usage of renewable raw materials, the fungus was important to take note of.

Botha said over the past 25 years there had been a number of reports on the ability of species in the *Coniochaeta* genus to rapidly degrade lignocellulose into fermentable simple sugars.

But so far, Botha's lab is the only one to be working on *Coniochaeta pulveracea*. "At the time we were looking for fungi and yeasts that can break down wood, so I knew this was something special when I decided to keep the twig," Botha said on his finding the fungus in 2011.

Back in the lab, there was great excitement when they observed that the species in the *Coniochaeta* genus was munching its way through birchwood toothpicks.

Even more astounding was its ability to change form between a filamentous fungus and a yeast, depending on the environment.

"This is highly unusual for a fungus. We'd typically expect this kind of behavior from some fungal pathogens," Botha said. Over the past decade, Botha and his postgraduate students focused on unravelling the behavior of the yeast-like fungus.

In 2011, Dr. Andrea van Heerden found that it produced enzymes that degraded the complex structures of wood into simple sugars,

cont. on page 3

GUMTRUFFLE

Andrus Voitk & Henry Mann
Omphalina, Foray Newfound. & Labr., April 2018

"Look what I found. What do you think this is?"

"Wow! Looks like a truffle! False or real? Where was it? What was the tree?"

"You won't believe it: in my tomato patch. No tree, although my yard is criss-crossed by birch roots. I almost threw it away, until I noticed that this was not an ordinary soil clump. Hard to cut, with a thick, solid cortex around it."

"This is exciting. I'm not aware of any truffles like this around here. Truth be told, I know next to nothing about truffles. The only one I know is *Alpova cinnamomea*, which you have collected, and this ain't it. Looks a bit young yet, I don't see hymeneal tissue, so it may not have any spores, but I'll take a look with the microscope tomorrow."

"Will you be able to identify it?"

"Oh, no. As I mentioned, I know nothing about truffles, have not met them here. But if there are some microscopic clues, I may be able to interest somebody with more expertise to identify it."

After warming for a day inside, it seemed a little rubbery and could be compressed somewhat without apparent damage, slowly expanding to its original shape after release of pressure. The first slide was from the dry, white, powdery area beneath the skin. No hyphae or recognizable hymeneal tissues were seen, and the material seemed to consist of a compact but unconnected agglomeration of somewhat irregular, spherical, hyaline (clear) particles, 5–12 µm in diameter. Maybe sphaerocytes and this is a hypogeous species of the Russulaceae?

Next attempt was to look at the grayer medulla or center. This was diagnostic. Not by what was seen, but by how a small piece could be shaved for a slide. Or, rather, could not. The medulla was semisoft and tacky, and stuck to the scalpel blade, which pulled away with strings attached, like taffy. Well, not so much taffy, as chewing gum. A proper slice could not be cut, and the material could not be compressed to become sufficiently thin for examination. Instead, it behaved just like old, semihardened chewing gum.

To quote Sir Leif Ryvarden, what else could it be? The famous gumtruffle, fit for an April 1 issue.

Why spoil an April 1st joke by revealing it in the same issue? Readers of scientific publications aimed at nonscientists put their trust in the publishing team to educate them, and feel understandably betrayed if their chosen teachers use their lack of knowledge to make fun of them. Like everybody else, they want to be in on the joke, not its butt. If they find out a month later that they were fooled while others laughed, they will feel hurt, and you will lose the very people you wish to reach. —Omphalina Ed.

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CALENDAR

April 9 Membership meeting, 7:30 pm, CUH
April 15 Board meeting, 7:30 pm, CUH board room
April 23 *Spore Prints* deadline
April 27 Field trip (see PSMS website)
May 3-5 Field trip (see PSMS website)

BOARD NEWS, Feb.

Luise Asif

Thanks to outstanding research by Shannon Adams, the board is in the process of acquiring six lab-grade microscopes for future classes and club activities. Reminder: Registrations are required for the Survivor's Banquet Saturday, March 9. Derek Hevel has a mock-up of the new PSMS cookbook. Don't forget to respond to his requests for pictures and recipes. Sweta Agrawal has agreed to chair the Arts & Crafts group. Interested in joining the group? Let her know. Marian Maxwell and Pacita Roberts are working to improve PSMS communications through our website. Jeremy Collison is again chairing Mushroom Maynia to be held on Sunday, May 19, at the Phinney Ridge Community Center. The Board is continuing to look for someone willing to upload photos of show posters to the PSMS Website. Interested? Contact Kim Traverse.

MEMBERSHIP MEETING

Tuesday, April 9, 2019, at 7:30 pm at the Center for Urban Horticulture, 3501 NE 41st Street, Seattle

Our speaker for April is Michael Bradshaw, who will present "An introduction to the Powdery Mildews and Their Relevance in the Pacific Northwest."

Powdery mildew is a widely distributed, detrimental disease of vegetables, fruits, and ornamental plants. Favorable conditions for the growth of the disease include dense plant growth, low light, and temperatures between 68 and 80°F. Powdery mildews are Ascomycetes that are obligate parasites and have been reported to infect over 10,000 plant species. The Pacific Northwest is one of the hot spots for powdery mildew growth and development with over 150 species (out of the estimated 1000 in the world) reported in this area. However, scant research on the powdery mildews has been conducted in the region, and consequently, there are taxonomic and phylogenetic gaps.

Michael Bradshaw completed a Master of Science degree in Plant Science under Sarah Reichard in the School of Environmental and Forest Science at the University of Washington in 2015. Currently he is pursuing his Ph.D. studying fungal pathogens under Patrick Tobin at the UW. Michael has a keen interest in ornamental horticulture where non-native organisms are found to cause substantial economic losses to the industry. Michael's goal is to become a university-affiliated garden director or herbarium curator where he will be able to teach while conducting research to provide new information to the mycological and plant pathology community.



Michael
Bradshaw

BOARD NEWS, Apr.

Luise Asif

PSMS's new president and trustees were welcomed, and outgoing officers thanked. Randy Richardson is taking over the lead as president from Kim Traverse. Be sure to thank Kim for his hard work although, as past president, he will remain on the board. Welcome to new trustees Deb Johnson, Scott Maxwell, Hans Drabicki, and Molly Sweesey. Derek Hevel and Erin O'Dell are returning for another 2 years. We are grateful to alternate trustees Kate Turner, Marion Richards, and Parker Olson for the enthusiasm that they bring. Thank you to out-going trustees Jamie Notman and Shannon Adams for your service and contributions. A huge thank-you is due Shannon who researched and helped PSMS procure six new microscopes for class and ID-clinic use. Very exciting!

Work on Mushroom Maynia (May 19) under the direction of Jeremy Collison is in full swing. Derek Hevel expects to have the new PSMS cookbook ready for the Fall Show, which is scheduled for the weekend of October 25-27, 2019. The Bridle Trails Project resumes the first week in April. The schedule continues to be alternating Mondays and Sundays. Daniel Winkler is awaiting the results of the first group of samples sent for DNA sequencing. Thank you, Daniel. In conjunction with the Native Plant Society and the Mountaineers, PSMS will be co-hosting Andrew MacKinnon, author of *Plants of the Pacific Northwest Coast* and other works, on May 4th. The location is the Mountaineers' Hall at Magnuson Park. PSMS is excited to welcome The Lichen Guild into the PSMS fold. As part of PSMS they will form the Lichen Committee.

***Coniochaeta pulveracea*, cont. from page 1**

feeding a community of surrounding fungi that did not have the ability to degrade wood.

In 2016, she published the results of her investigation into its ability to switch to a yeast-like growth. Understanding this process would be important to the potential use of this fungus in industrial processes, the university said. Dr. Heinrich Volschenk, an expert molecular biologist, said the next step was to understand the fungus's mechanism of breaking down wood and producing sugars on a molecular level.

EATING MUSHROOMS MAY REDUCE THE RISK OF COGNITIVE DECLINE

<https://www.sciencedaily.com/>, Mar. 12, 2019

A team from the Department of Psychological Medicine and Department of Biochemistry at the Yong Loo Lin School of Medicine at the National University of Singapore (NUS) has found that seniors who consume more than two standard portions of mushrooms weekly may have 50 percent reduced odds of having mild cognitive impairment (MCI). A portion was defined as three quarters of a cup of cooked mushrooms with an average weight of around 150 g. Two portions would be equivalent to approximately half a plate. While the portion sizes act as a guideline, it was shown that even one small portion of mushrooms a week may still be beneficial to reduce chances of MCI.



“This correlation is surprising and encouraging. It seems that a commonly available single ingredient could have a dramatic effect on cognitive decline,” said Assistant Professor Lei Feng, who is from the NUS Department of Psychological Medicine, and the lead author of this work.

The six-year study, which was conducted from 2011 to 2017, collected data from more than 600 Chinese seniors over the age of 60 living in Singapore. The research was carried out with support from the Life Sciences Institute and the Mind Science Centre at NUS as well as the Singapore Ministry of Health's National Medical Research Council. The results were published online in the *Journal of Alzheimer's Disease* on March 12, 2019.

Determining MCI in Seniors

MCI is typically viewed as the stage between the cognitive decline of normal aging and the more serious decline of dementia. Seniors afflicted with MCI often display some form of memory loss or forgetfulness and may also show deficit in other cognitive functions such as language, attention, and visuospatial abilities. However, the changes can be subtle, as they do not experience disabling cognitive deficits that affect everyday life activities, which is characteristic of Alzheimer's and other forms of dementia.

“People with MCI are still able to carry out their normal daily activities. So, what we had to determine in this study is whether these seniors had poorer performance on standard neuropsychologist tests than other people of the same age and education background,” explained Asst. Prof Feng. “Neuropsychological tests are

specifically designed tasks that can measure various aspects of a person's cognitive abilities. In fact, some of the tests we used in this study are adopted from a commonly used IQ test battery, the Wechsler Adult Intelligence Scale (WAIS).”

As such, the researchers conducted extensive interviews and tests with the senior citizens to determine an accurate diagnosis. “The interview takes into account demographic information, medical history, psychological factors, and dietary habits. A nurse will measure blood pressure, weight, height, hand grip, and walking speed. They will also do a simple screen test on cognition, depression, anxiety,” said Asst. Prof Feng.

After this, a two-hour standard neuropsychological assessment was performed, along with a dementia rating. The overall results of these tests were discussed in depth with expert psychiatrists involved in the study to get a diagnostic consensus.

Mushrooms and Cognitive Impairment

Six commonly consumed mushrooms in Singapore were referenced in the study. They were golden, oyster, shiitake, and white button mushrooms, as well as dried and canned mushrooms. However, it is likely that other mushrooms not referenced would also have beneficial effects.

The researchers believe the reason for the reduced prevalence of MCI in mushroom eaters may be down to a specific compound found in almost all varieties. “We're very interested in a compound called ergothioneine (ET),” said Dr. Irwin Cheah, Senior Research Fellow at the NUS Department of Biochemistry. “ET is a unique antioxidant and anti-inflammatory which humans are unable to synthesize on their own. But it can be obtained from dietary sources, one of the main ones being mushrooms.”

An earlier study by the team on elderly Singaporeans revealed that plasma levels of ET in participants with MCI were significantly lower than age-matched healthy individuals. The work, which was published in the journal *Biochemical and Biophysical Research Communications* in 2016, led to the belief that a deficiency in ET may be a risk factor for neurodegeneration, and increasing ET intake through mushroom consumption might possibly promote cognitive health.

Other compounds contained within mushrooms may also be advantageous for decreasing the risk of cognitive decline. Certain hericenones, erinacines, scabronines, and dictyophorines may promote the synthesis of nerve growth factors. Bioactive compounds in mushrooms may also protect the brain from neurodegeneration by inhibiting production of beta amyloid and phosphorylated tau, and acetylcholinesterase.

Next Steps

The potential next stage of research for the team is to perform a randomized controlled trial with the pure compound of ET and other plant-based ingredients, such as L-theanine and catechins from tea leaves, to determine the efficacy of such phytonutrients in delaying cognitive decline. Such interventional studies will lead to a more robust conclusion on causal relationship. In addition, Asst. Prof Feng and his team also hope to identify other dietary factors that could be associated with healthy brain aging and reduced risk of age-related conditions in the future.



FUNGUS-ILLUSTRATED POSTAGE STAMPS FROM IRELAND

Brian S. Luther

The island of Ireland is an ancient place of human habitation, documented before 10,000 BC, with countless prehistoric man-made structures. Although never actually conquered by the Romans, who called Ireland Hibernia, many artifacts have confirmed a Roman presence or association with the island, most likely relating to trade in the first three centuries AD.

The Republic of Ireland, which occupies the southern part of the island, gained independence from Great Britain in December, 1921, and has been issuing its own postage since 1922. Irish stamps say *Eire* or *Éire*, which is the modern Irish-language name for the country, derived from a Gaelic goddess. (North Ireland, which occupies the north portion of the island, is still part of the United Kingdom and does not use the same postage.)

The Republic of Ireland has issued five stamps depicting fungi (that I'm currently aware of) which are documented in the following table. All catalog numbers listed in the table are from the Scott Postage Stamp Catalogues; M = mushrooms or fungi as the main illustration; MID = mushrooms or fungi that are in the design of the illustration, the background, border, or selvage but that are not the primary illustration; s/s = souvenir sheet, a sheet having one or more stamps on it along with additional illustrations; FDC = first day cover, an envelope (cover) with the stamps cancelled on the first day of issue, often with an illustration (cachet) and a cancel having the same theme.

Fungus-illustrated stamps from Ireland.

Date of Issue	Cat. No.	Value	Type	Subject
10/15/1992	877	32p	MID	<i>Agaricus bisporus</i> & <i>Penicillium roqueforti</i>
8/1/2008	1796	55c	M	<i>Macrolepiota procera</i>
"	1797	"	"	<i>Leccinum versipelle</i>
"	1798	82c	"	<i>Hygrocybe calyptriformis</i>
"	1799 s/s	95c	M	<i>Sarcoscypha austriaca</i>

1992 Stamp

Scott 877 is the first stamp on a horizontal strip of four (Scott 877–880) issued for the Food and Farming Year. This stamp shows a variety of foods, including five cultivated button mushrooms, *Agaricus bisporus*, all looking at the underside, or gills. (What looks like a cap view of another mushroom next to and above these may actually be an egg.) Next to the apple, this stamp also

Scott 877.



B.S. Luther

clearly shows a slice of cheese having blue veins of the fungus *Penicillium roqueforti*, which is used to make Blue, Roquefort, Stilton, Gorgonzola, and other cheeses. So, two different fungi are illustrated. All four of these stamps in the set are labeled “Bia agus Feirmeoireacht,” which means food and farming in the Irish language. Because the mushrooms and cheese slice on this stamp represent only a small portion of the total illustration and are not the main feature, I put this in my MID category. This stamp is perforated and with gum.

2008 Stamps

Stamps Scott 1796–99 are gorgeous, with all of the illustrations being colorful and very detailed. All are perforated and with gum. The first three stamps were issued by themselves, but Scott 1799 was issued only on a s/s. All stamps are labeled at the bottom with the English common name, the Irish common name, and the year with the scientific name shown vertically on the right. These first three stamps were issued in full sheets of 16, titled “Fauna and Flora - Fungi” (in both English and Irish) with the *Macrolepiota* and the *Leccinum* together on one sheet and the *Hygrocybe* stamp on its own sheet. (Note: The *Hygrocybe* illustrated on Scott 1798 has now been transferred to the genus *Porpolomopsis* as *P. calyptriformis*.)

Two different s/s were issued for Scott 1799, the fourth stamp in



Scott 1796.

Scott 1797.

Scott 1798.

B.S. Luther

the set: the regular s/s and a more scarce form that is overprinted on the top left with “Stampa, R.D.S. Dublin 4, 16–18 Oct. 2009.” The latter was issued on a different date from the regular s/s as an overprint at the Irish Stamp Exhibition called Stampa, but is not listed separately by the Scott Catalogue. Both have the same illustration: an inset of the actual stamp on the upper right showing three *Sarcoscypha austriaca* (Scarlet Elfcup) and a forest scene with 30 mushrooms (and some mushroom stems) on the left and the right that are not on the stamp itself. These mushrooms all appear to be *Flammulina velutipes*, which is a common, edible species on hardwoods in temperate forests worldwide. (It’s called Enoki or Enokitake and popular in Japanese and other Asian cuisine.)



Scott 1799 souvenir sheet and stamp.

B.S. Luther



Scott 1799, overprint souvenir sheet.

B.S. Luther

References

Luther, Brian S. 2012. An Introduction to Fungus-Illustrated Cinderellas. *Spore Prints* 486 (November), pp. 6–7. Online and in color at www.psms.org.

Luther, Brian S. 2015. Fungus-Illustrated Stamps from Great Britain. *Spore Prints* No. 511 (April), pp. 4–6. Online and in color at www.psms.org and also on the main website homepage under "Education and Fungi on Postage Stamps."

Luther, Brian S. 2016. Fungus-Illustrated Stamps from the Isle of Man. *Spore Prints* No. 522 (May), pp. 4–5. Online and in color at www.psms.org.

CORDYCEPIN COULD HOLD THE SECRET TO NEW TREATMENT FOR OSTEOARTHRITIS

Jane Icke

<https://medicalxpress.com/>, Mar. 19, 2019

A new study, led by Dr. Cornelia De Moor from the University of Nottingham's School of Pharmacy, has shown cordycepin, a compound isolated from the caterpillar fungus *Cordyceps militaris*, to be effective in treating osteoarthritis by blocking inflammation in a new way. The findings were published today in *Scientific Reports*.

"In this paper we show that orally administered cordycepin reduces pain and halts disease progression in animal models of osteoarthritis," said De Moor. "Intriguingly, it does this by a different mechanism than any other known anti-inflammatory painkiller, through affecting the last step of making a messenger RNA, polyadenylation. This means that medicines derived from cordycepin may help patients for whom other treatments have failed. We hope that cordycepin will prove to be the founder of a new class of pain killer, the polyadenylation inhibitors. There is a long way to go before a cordycepin-derived medicine reaches patients, but our work is very promising and we are very excited about the prospects."

Osteoarthritis is a chronic age-related joint disease, with approximately a third of people over the age of 45 seeking treatment for this painful and debilitating disease. Current treatment options are largely limited to lifestyle changes and reducing pain with non-steroidal anti-inflammatory drugs or opioids which have limited efficacy and come with problematic side effects. As a result, joint replacement surgery is a common outcome.

The study found that cordycepin treatment reduced pain behavior and structural damage in rats and mice with osteoarthritis, supporting a role of polyadenylation in osteoarthritis progression, inflammatory gene expression, and pain.

This new research provides the possibility of a more effective treatment for osteoarthritis that is less toxic, so will have reduced side effects for patients.

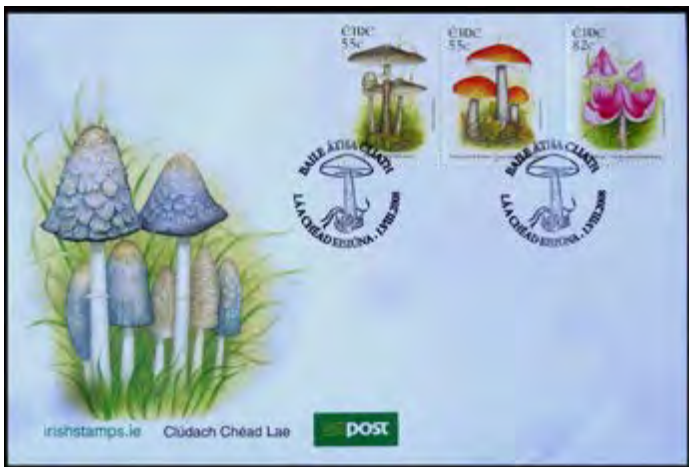
Dr. Stephen Simpson from Versus Arthritis said: "Persistent pain is life changing for people with arthritis...so we are delighted to support this research that has led to these fascinating findings. Previous work has shown this compound has anti-inflammatory effects, and the latest studies support understanding of how this works on cells responsible for inflammation. Although in its early stages, the study has great potential for helping people suffering pain of musculoskeletal conditions and demonstrates the high value...of novel discovery-led research."



Close up of Scott 1799.

The FDC issued for the 2008 set shows the first three stamps but not Scott 1799 (so far, I haven't seen a second FDC with only the Scott 1799 s/s, but one may have been issued) along with a cachet showing seven Shaggy Manes, *Coprinus comatus* (what they call Shaggy Inkcap or Lawyers Wig in Ireland and the British Isles). The cancel shows a single *Leccinum*. The FDC contains a card with additional information, including a brief discussion about picking and eating wild fungi and a few comments

about each of the three mushrooms shown. As pointed out on the card, wild mushroom collecting and eating in Ireland has been a long standing taboo, even though popular in Europe: "...in Ireland, people generally avoid picking them for fear of poisoning."



2008 FDC with three of the four stamps.

B.S. Luther

In all, six fungi are shown on the stamps and related postal items—the ones on the four stamps plus *Flammulina velutipes*, and *Coprinus comatus*. The unlabeled *Leccinum sp.* shown on the cancel is most likely the same as that on Scott 1797.

Ireland also issued a stamp on June 9, 2008, (Scott 1787) titled "Tidy Towns" that shows a miniature building in the shape of a mushroom.

I also have an old 1925 Irish Christmas-seal Cinderella (non-postage seal) showing two mushrooms (Luther, 2012) titled "Health is Wealth" with a Leprechaun. (See also previous articles on myco-postage from Great Britain (Luther, 2015) and the Isle of Man (Luther, 2016).

PSMS FIELD TRIP CHANGES IN 2019

Wren Hudgins¹ and Brian S. Luther²

The Spring 2019 field trip (FT) schedule is now out, and we have some exciting trips lined up for you. (Refer to the FT insert that comes with your mailed copy of the April *Spore Prints* as well as the secure website “Members” page for details.) Morel hunting is emphasized, with two FTs to the same area that burned last summer, so our prospects might be good. (But expect competition from non-member mushroomers, of course.)

Guided Groups

As most of you know, we have a FT program wherein members wishing to have a guided mushroom-hunting experience can sign up with an experienced FT guide. This program, on Saturday mornings only, is aimed primarily at new members who often need some help with basics starting out. This is a benefit for PSMS members, so we don't take out non-members.



All the guides are PSMS volunteers, which means we almost always have different numbers of guides on different FTs; consequently we sometimes don't have enough of them at any given FT to satisfy the demand. Guides may take out groups with up to ten members, but possibly fewer if the guide is new, only feels comfortable with fewer, or the terrain is rough.

What seems to happen with some frequency is that new members arrive, and all the guided groups are already full. We understand the frustration that may result, but we simply can't alter our procedures and take out larger groups, primarily because it's just too difficult to keep track of more than ten people in the woods. So, the message here is...*arrive early at all FTs* so you can sign up for a group before the 10 person limit per guide is reached. We'll have sign-up sheets available for this purpose, and they'll be available at the start of the FT, from about 8:00 am onward.

Recommended Gear



We encourage FT attendees to be prepared for wilderness travel. This means more than just bringing the correct clothing, collecting gear, a lunch, a bottle of water, and a potluck contribution. Never go into the woods by yourself for safety.

If you Google “10 essentials” you will see a list of minimal survival gear which we'd recommend you take on every outing. Some experienced mushroomers and hikers just keep a day pack with these items inside their car and leave it full for the next week's hike/hunt. At the very least you need to have some navigation devices such as a map and compass and/or a GPS (either a phone app or a stand-alone GPS) and a whistle.

When you go out with a guided group, the guides will do their best to get you back to the starting point, but *you are ultimately responsible for yourself*. So, please don't abdicate or leave all

responsibility for navigation to your guide. Instead, pay sharp attention to where you are relative to your starting point at all times.

Two-Way Radios

FT guides also use two-way radios (aka walkie talkies) to keep in touch with each other, the new members being guided (for those who have them), and the base camp. We encourage as many people as possible to bring their own radios and stay in touch with us. For years we used channel 13-1 as our coordinated club channel, but starting with our first 2019 spring FT, *we'll be switching to channel 2, sub-channel 1*. We're making this change to achieve superior transmission strength, or range. If you have further questions relating to the FT guide program, safety, or navigational and communication items needed for our FTs, feel free to email Wren Hudgins (wren.hudgins@gmail.com).



New: Go Green and Bring Your Own

Other changes we're making starting with the Spring 2019 FTs concern generating less trash and recyclables overall. Some sites have trash bins, but at most locations this stuff has to be hauled off by volunteers. In particular, we'll be eliminating single-use plastics, as well as asking members to bring their own plates, cups, and silverware. Field trip attendees planning to participate in the morning breakfast snacks and potluck dinners will be required to bring their own reusable plates, cups, and eating utensils, *or* burnable paper products, plus anything you might need to serve your potluck contribution.

For decades we've provided plastic eating utensils for members, but we're getting rid of these because they just add to the trash that's discarded. Reusable items would be good, but you can also bring totally burnable paper products (cups, plates, and bowls) and disposable wooden eating utensils that are burnable or compostable. Please *do not* bring non-burnable disposable items or anything that's made of discardable plastic or Styrofoam of any kind. The world simply does not need more plastic or other non-recyclable items in landfills.



Most of our FT sites have fireplaces or fire pits, and if we're allowed to have a fire (rarely not, owing to a burn ban in Fall), then we always burn what paper/cardboard disposables we can at the FT site. Even food-soiled paper items (plates, cups, paper towels, etc.) can be burned, so just throw these used items in the fire—but please pay attention and *do not burn any plastics*. We set up (and label) both trash and recycle bags/bins at all FTs, so please pay careful attention and don't mix these up. We'll be briefly discussing this subject and reminding members every Saturday morning at all FTs.

Field Trip Hosting

We are always looking for FT hosts. Anyone interested in serving as one please contact Hosting Committee Co-Chairs Carolina Kohler (cakahler@ymail.com) or Debbie Johnson (deb-joh13@comcast.net). We have a written job description which explains everything. The FT host(s) *do* get a chance to go mushrooming,



¹Field Trip Safety Chairman

²Identification Chairman & Field Trip Chairman

so you are not stuck serving breakfast goodies all day. With the above emphasis on moving toward personal responsibility for everyone bringing their own food service items, the total amount of gear hosts have to bring to the FTs will be reduced, making their job a bit easier.

Providing hot coffee and breakfast snacks at PSMS FTs is a long-standing tradition, but a few times in past years we have come close to not having any FT host volunteers. This situation resulted in some serious discussions among those of us who organize and manage the FTs. As a result, we decided that if, in the future, we don't have a host for a FT, the FT itself will go forward, but it will be unhosted, meaning there won't be any coffee or breakfast goodies served at all. Of course, if you volunteer, that potential negative outcome just won't occur, so please agree to be a FT host.

If you're a new member, please be sure to read *all* the information on our website homepage (www.psms.org) related to field trips (including the FAQ link) to give you an idea of what to expect. If after reading all this you still have questions, then feel free to contact Brian (a2z2luther@gmail.com).

Thank you and we're looking forward to a great spring season. Hope to see you there!

GENETIC ANALYSIS REVEALS MYSTERIOUS EVOLUTION OF BREWER'S YEAST THAT MAKES BEER POSSIBLE

Andrew Masterson

Cosmos

via <https://geneticliteracyproject.org/>, Mar. 13, 2019

The strain of brewers' yeast used to make beer, *Saccharomyces cerevisiae*, derives from versions used over thousands of years to make grape wine in Europe and rice wine in Asia, a new genetic analysis shows.

The analysis, which involved sequencing the genomes of 47 strains of brewers' (or bakers') yeast and 65 other strains of the same species, is published in the journal *PLOS Biology*. The results reveal that beer-making *S. cerevisiae* is a very special fungus, indeed. In addition to being, as the researchers say, "the product of a historical melting pot of fermentation technology," it also contains genes derived from a mysterious, unknown, and possibly extinct additional strain, and overall bears very little resemblance to any surviving wild strain.

MUSHROOM COCKTAILS? WHY NOT?

Christopher Osburn

<https://www.mandatory.com/>, Mar. 12, 2019

Like a lot of foods, mushrooms are really divisive. Either you love them or you absolutely hate them. Just like cilantro or blue cheese, there doesn't seem to be any in between. Most people who enjoy mushrooms eat them in soups, salads, and various savory dishes. But,



Olivia Steinberg/Getty Images

did you know that some bartenders are actually using fungi as a cocktail ingredient?

"Mushrooms are a great 'spice' that bring to life the subtle nuances of the spirit or cocktail," says Steve Nydell, director of restaurants and bars at District in Los Angeles. "They add a hard-to-identify warmth that awakens hidden flavors, especially in barrel-aged and bitter spirits."

Obviously, mushroom-centric cocktails aren't for everyone. "You wouldn't believe how many times a drink gets sent back because a guest doesn't like one of the ingredients, even though it's boldly listed in the descriptions," says Jeremy Allen, general manager of MiniBar in Hollywood, California. "If you don't like mushrooms, maybe we find something to better suit your tastes." Like all foods, they do come in different degrees of flavor from mild and light, to earthy and mellow, to sweet, and finally intense "shroominess."

It would be very difficult to make the base of the drink a mushroom. Instead, the mushroom plays a role in flavor pairing. "As the flavor can be quite pungent, we infuse a base and then blend it with fresh product to achieve the desired impact on the drink," says Logan Demmy, bar manager at Citizen's Trust in Columbus, Ohio.

IT'S THE YEAR OF THE PIG. IS IT ALSO THE YEAR FAKE PORK TAKES OFF IN CHINA?

Andrew Genung

The Washington Post, Mar. 18, 2019

HONG KONG - For much of January and February, Hong Kong was awash in cute pigs, all because the 12 lunar months roughly corresponding to 2019 make up the Year of the Pig in the Chinese zodiac.



Omnipork dumplings at Green Common's Kind Kitchen.

Over the past few weeks, most of the larger displays came down, and the city more or less went back to seeing pigs publicly displayed the way they usually are—as dismembered chunks of cooked and uncooked flesh, hanging from hooks.

For these more practical pig products, local entrepreneur David Yeung is offering an alternative this year: Omnipork, a mix of pea protein, soy, shiitake mushrooms, rice and other ingredients, designed to mimic minced pork for the Asian market.

After nearly two years of research and development, his company, Right Treat, launched Omnipork as a wholesale product for chefs and restaurants in April of last year and made it available to consumers this past November. A 230-gram package (about 8 oz.) retails for around \$5.50.

While it lacks the pink, noodle-like shape that real ground pork often gets from passing through the holes of commercial meat grinders, Omnipork does credibly resemble the genuine article at first glance. It's even more convincing in the hands of such talented chefs as Jowett Yu of Ho Lee Fook in the Hong Kong SoHo district. He's seen customers genuinely surprised it's not actual pork.

"It has a tendency to stick more to the cooking surface, so that's a challenge," Yu says, "but other than that, the texture is like pork mince, and the flavor, especially caramelized, is like pork."

**TEXAS WOMAN SUES OLIVE GARDEN
AFTER STUFFED MUSHROOMS CAUSE SEVERE
BURNS TO THROAT**

Nichole Manna

<https://www.charlotteobserver.com/>, Mar. 12, 2019

A Fort Worth woman is suing Olive Garden after she says an extremely hot stuffed mushroom got lodged in her throat, which caused her to temporarily stop breathing and resulted in severe burns.

Danny Howard filed a lawsuit against the restaurant on March 8 in Tarrant County District Court. She alleges that the restaurant didn't warn her that the mushrooms were extremely hot. Her attorney, Jess Lotspeich, declined to comment.

On Aug. 11, 2017, Howard went to an Olive Garden in Tarrant County and ordered the stuffed mushroom appetizer. When it was served to her, there was no warning that would indicate that the "mushrooms were particularly hot or (carried) the risk to cause severe burns," according to the lawsuit.

Howard took a bite of the mushroom, and it immediately burned her mouth. The burning mushroom then became lodged in her throat, which caused her to choke and stop breathing. The lawsuit says that Howard "frantically shuffled through the restaurant in need of help," but was unable to speak. She eventually vomited in a kitchen station.

MUSHROOM MAYNIA!

Luise Asif

Mushroom Mania is coming up! Details are as follows:

Date: May 19, 2019

Time: 12:30-5:00 pm

Place: Phinney Center Community Hall (Lower Building)
3501 6532 Phinney Ave. N.
Seattle, WA 98103

Cost: \$5 family, \$3 individual

Jeremy Collison has exciting new ideas for this year's event, hunting and harvesting methods and talks, and activities to interest both adults and children. With the changing weather we may have enough mushrooms to create interesting displays.

As always, your help will be needed! Where to help?

Kate Turner - Children's activities

Marian Richards - Dye exhibit

Dory Maubach - Microscopy

Paolo Assandri - Books

Paul Hill - Photography

Brenda Fong - Volunteer's hospitality room

Jeremy, Jackson Wright, and Milt Tan are coordinating new exhibits for cultivation along with the ever-popular "creating your own kits."

Want to be part of the fun? Contact volunteers@psms.org.

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