



The Potomac Sporophore

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See page 3

In This Issue

Sequanota Foray1

Fungus Notebook1

From the President3

MAW Elects 2013 Board3

2013 Scheduled Events4

Meeting File4

Mushroom Fair4

Fall Tasting6

Cartoon8

Sequanota Foray Draws Intrigue

Willow Nero
Sporophore Editor

MAW's 2012 Annual Camp Sequanota Foray Sept. 28-30, 2012, drew many club members to Jennerstown, Pa., for a weekend of foraging, cooking and tasting, socializing, and presentations by guest mycologist Gary Lincoff.

The weather was a bit on the chilly side this year, which meant foragers found slightly different mushrooms than in the past. Honey mushrooms (*Armillaria spp.*) were the most common find, as is usual for late September. In concluding the weekend's events, Lincoff emphasized honey mushrooms always have a white spore print and black hair-like protusions on their caps, unlike the look-alike deadly galerina (*Galerina autumnalis*). He further warned foragers about "putting up" honeys. He



Willow Nero

Gary Lincoff presents to Sequanota Foray participants Sept. 30, 2012, a poster common in the Northwest U.S. warning of poisonous mushrooms that often look like delectable varieties found in foreign countries.

heard at least one case of eager canners who correctly identified their honeys but didn't protect themselves against botulism. "The irony should not be lost on you," he said.

Participants learned chanterelles (*Cantharellus spp.*) are similarly

esteemed to the *Hydnum* genus as far as edibility goes. Though saying they're superior — "Those are fighting words," Lincoff warned.

Some of Lincoff's craziest tales and staunchest warnings came in his description of

Continued on page 5

Fungus Notebook: The Glinting Orange Ganoderma

William Needham
MAW Secretary

Common Name: Varnish shelf, Hemlock polypore, Ling zhi or ling chi (Chinese), Reishi (Japanese) — The laccate upper surface of the pileus (cap) has the sheen of varnished wood; its lateral single point attachment juts from the tree bole like a shelf.

Scientific Name: *Ganoderma tsugae* — The generic name is a combination of the Greek

ganos, meaning "brightness" and *derma*, meaning "skin" in reference to the glinting surface, or skin, of the fungus. The genus of hemlock trees is *Tsuga*; the fungus is most frequently found on a hemlock host. *Ganoderma lucidum* is essentially identical in appearance and grows on deciduous trees; *lucidum* is Latin for "full of light, clear, bright" — an additional reference to the lacquered semi-circular cap, or

basidiocarp.

The iridescent glow of this burnt orange bracket fungus evokes a numinous provenance that distinguishes it from its more mundane polypore cousins. It undoubtedly caught the eye of the earliest hominids who may have originally used it as an adornment to their environs; it is collected to this day for its natural beauty. Its mystical appearance as an



William Needham

The striking colors and varnished appearance of *Ganoderma* make it an attractive mushroom to display in one's home.

excrescence on a tree bole prior to the advent of the understanding of the scientific age may also have led to its associa-

Continued from page 1 tion with local divinities, a sylvan gift from the gods. It is too tough to eat, but it can be readily ground up for consumption; it has been in use in China as a medicinal tea for millennia. It was listed in *Shen Nong Ben Cao Jing*, which is one of the earliest Chinese herbal texts, and dates to the Eastern Han Dynasty (25 – 220 CE). Paul Stamets in *Mycelium Running* notes that “the earliest mention of ling chi occurred in the era of the first emperor of China, Shih-huang of the Ch’in Dynasty (221 – 207 BCE).”

Ganoderma is “probably the most morphologically complex genus of polypores” according to Chang and Miles in *Mushrooms: Cultivation, Nutritional Value, Medicinal Effect and Environmental Impact*. Over 250 separate species have been identified; the taxonomy is based on significant variability in both microscopic and macroscopic physical characteristics. The proliferation of names is attributable at least in part to the global geographical distribution of the fungus and to its extensive use as an herbal medicine. The advent of DNA analyses has resulted in a significant reorganization of the original fungal taxonomy of Linnaeus. A phylogenetic study of the *Ganoderma* genus based on mitochondrial DNA published in the publication *Mycologia* in 2004 found that the 250+ species were in actuality only 6 monophyletic (from a single parent) groups. It is notable that strains of *G. tsugae* and *G. lucidum* from both North America and Europe were found to be in the same grouping. However, strains of *G. lucidum* from Korea and Japan were identical to each other, but different from the strains of *G. lucidum* from Europe and North America. The study concluded that “*G. lucidum*, the most cosmopolitan member of the *Ganoderma*, was polyphyletic according to geographical origins.” This may have some significant implications for the burgeoning market for *Ganoderma* products. A study conducted by the Taiwanese Biotechnology Research and Development Institute in 2002 found that *Ganoderma* products were the highest volume product in their health food market and that the most widely used raw material was *G. tsugae*. The estimated annual production of the more reliable Asian *G. lucidum* was 4,300 Metric Tons (MT) in 1997 (3,000 MT in China alone) with a market value of about \$1.6B.

One of the primary defining taxonomic aspects of the *Ganoderma* genus is the presence of thick double-walled spores called chlamyospores (*chlamys* is Greek for “mantle” — a protective cover). These spores are highly protective against environmental extremes and help explain the global proliferation of the fungal genus. *Ganoderma* fungi, once grown from the chlamyospores, consist of corky, thick fruiting bodies that grow on hardwoods or conifers according to the species; they are in all cases a white rot, wood decay saprobe. A saprobe derives its nutrition from dead plants — fungi that live on live plants are parasitic or mycorrhizal. This is not to say that they are benign, as they can also infect live trees. According to Bryce Kendrick in *The Fifth Kingdom* “*Ganoderma* may not kill trees, but they cause serious decays of both standing and structural timber. These rots cost us many millions of dollars every year.” There are white rot fungi and brown rot fungi; the color distinction refers to what they don’t consume rather than what they do. In other words, white rot fungi consume the brown lignin (and some but not all of the white cellulose) so that the resultant decayed mass is white in color. Conversely, brown rot fungi consume only the white cellulose so the end result is brown.

The use of *G. lucidum* and *G. tsugae* in China from the dawn of prehistory with purported benefits to health, life and longevity has resulted in the attribution of preternatural powers to the fungi. The word *ling* in Chinese translates into something like “spiritual, miraculous, and/or divine” and conveys a notion of its efficacy and provenance. This has been exaggerated in the English rendition to everything from “mushroom of immortality” to “magic fungus.” From China, the beneficence of *Ganoderma* spread to the rest of Asia; in Japan, it is called either reishi, which means something like “auspicious plant” or “immortal-ity plant,” or mannentake, which translates

to “10,000-year mushroom.” The extensive history of the use of *Ganoderma* as part of a long-term health regimen and the vast body of fervent, though hearsay, testimonials by its users establishes at least the likelihood of a modicum of truth to its purported life extending properties.

Assays of *G. lucidum* and *G. tsugae* over



Eric Steinert

Members of the genus *Ganoderma* have a corky, thick fruiting body with red, orange, and white coloration. They grow on hardwoods or conifers.

the past half century have revealed that they contain a virtual pharmacological cornucopia of potentially beneficial chemical compounds. Over 150 triterpenes and 50 polysaccharides have been identified as being uniquely derived

Continued on page 7

It's Your Newsletter

Write for *The Sporophore* or Send in Your Photos, Article Ideas, and More

The Mycological Association of Washington is a volunteer-run organization. Help make *The Sporophore* the best it can be with your submissions.

Review mycology books, films, events, and more. We'd love to publish a club-member's Smartphone app review.

Volunteer to provide an event or meeting summary.

Present your original research or write up a summary of scientific paper.

Email newsletter@mawdc.org for more information.

From the President: Tasting Transition

Bruce Boyer
MAW President

As we start a new year, one critical issue needs to be resolved to insure MAW's continued success and your enjoyment. That is our long-standing tradition of cooking/tasting at our May and October meetings. Excessive use of electrical cooking equipment (microwave ovens, toasters, hot plates, etc.) in October, overloaded the library's power circuits, and we have been banned from cooking in our usual meeting place. Since this is our second violation, albeit the last was over 10 years ago (we bought more gas stoves), it is unlikely the ban will be rescinded. It appears we have three options: 1. cancel organized tasting meetings, as many NAMA clubs have done; 2. find a new venue for cooking/tasting meetings, possibly at

separate times from our normal monthly meetings; or 3. prepare food off-site for scheduled tastings. There may be other options, but the choice is not clear, since each option has advantages and disadvantages.

1. Cancelling tasting meetings would be the easiest option to implement, but it breaks severely with MAW tradition and would probably reduce the enjoyment of most members. This choice allows us to add two more educational presentations each year; retain our current meeting sites; and render moot questions of liability insurance, qualification of identifiers for consumption purposes, consumption of alcohol, and property damage or cleanup at our meeting sites. This choice would also prevent presentations by chefs demonstrating cooking techniques.

2. Finding a new venue either for a. all

monthly meetings; b. solely the regularly scheduled tastings or cooking demonstrations; or c. specifically for one or two separately scheduled tasting meetings each year (e.g. an additional, perhaps Saturday event). Board members have been looking into this option for several years, but we have yet to find a suitable location at a cost that works with our current budget. The facility would ideally have space for 20 cooking stations and seating for 80 to 100 participants, with at least a basic kitchen/sink or cleanup area.

3. Offsite preparation with assembly at the library. This option is possibly the simplest to initiate and still have tastings at monthly meetings. The difficulties appear to be identification of wild mushrooms before they are cooked, transport of prepared food directly to the meeting, loss of food quality, and reduction in the

Continued on page 7

MAW Elects 2013 Board Members

MAW Members present at the Dec. 4, 2013, meeting were presented with a recommended slate of board nominees and, a quorum having been reached, unani-



Board members are, from left, John Harper, Jon Ellifritz, Connie Durnan, Bruce Eberle, Mitch Fournet, Cody Waisanen, Bruce Boyer, and (not pictured) Willow Nero.

mously approved the 2013 board of directors: Bruce Boyer, president; Mitch Fournet, vice president; William Needham, secretary; John Harper, treasurer; Willow Nero, newsletter editor; Barbara Karpas, membership chair; Cody Waisanen, culinary chair; Connie Durnan, NAMA liaison/trustee; Bruce Eberle, program chair; and Jon Ellifritz, foray chair.

The first board meeting was held Dec. 5, and board members primarily discussed the 2013 budget. Other important items included:

- Goals for 2013.
- Recommendations to strengthen NAMA regional trustees and NAMA presence within member clubs.
- The search for a new venue for tasting meetings.
- Content of the Jan. 8 meeting.

Any member is welcome to contact members of the board to suggest proposals for the board to consider. Members may attend board meetings at which their proposals are being considered. Board notes will be available at the Jan. 8 meeting.

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Views expressed within these pages represent the individual authors and not necessarily MAW or its board of directors. MAW is a member club of the North American Mycological Association.

Meeting File

Nov. 6 — Dr. Patrick Leacock on Gilled Mushroom Identification

William Needham
MAW Secretary

On election day 2012, Dr. Patrick Leacock, an active member of mushroom clubs of the Midwest region, notably in the Chicago area, presented to MAW members on the topic of gilled mushroom identification. He has been the head of the NAMA program to identify, record, and store the fungi found

at NAMA's annual forays. Last year he received the 2011 NAMA President's Award for Outstanding Service. He delivered a presentation on mushroom identification, focusing on gilled mushrooms at the MAW monthly meeting. His talk provided the information necessary and sufficient to distinguish groups of mushrooms and identify species on the basis of macro characteristics, those visible to the naked eye or with the aid of small magnifying lenses. The important factors he emphasized were:

- Spore print color - white, cream, buff, green, pink, brown and black
- Partial veil and universal veil – consistency, location, ring, volva, warts, other remnants
- Cap characteristics – shape, color, surface texture and covering, margin, veil remnants
- Gills/Pores/Teeth/other attachments and characters – spacing, color, width
- Stalk characteristics – shape, color, surface texture and covering, base, veil fragments
- Staining or bruising of surfaces or inside context and chemical reactions to KOH and FeSO₄
- Other Characteristics – odor, taste, latex,

corals or rhizomorphs

- Manner of growth – solitary, scattered, gregarious
- Substrate – type of wood, roots, leaf litter, wood chips, soil, sand, moss, dung
- Habitat – woods, savanna, prairie, swamp, bog, urban

It was stressed that the time of year and the latitude and longitude of a particular location were very important in mushroom identification, noting that vertical elevation or altitude has a similar effect as an increase in latitude.

Dec. 4 — Dr. Britt Bunyard on Chaga 'Black Gold'

Willow Nero
Sporophore Editor

Dr. Britt Bunyard, publisher and editor-in-chief of *FUNGI Magazine* spoke to MAW members about Chaga, a “clinker” that has gained notoriety because of anecdotal evidence it can deter

the development of

cancer. While Chaga sales online and in specialty stores have soared, many adherents to this folk cure know little about the life cycle and other mechanisms of Chaga (*Inonotus obliquus*). This basidiomycete is not, as many think, a shelf fungus, but rather it grows inside a tree as a tumor; even the highly prized sterile conks are part plant and part fungi.

Whether Chaga is pathogen remains unknown; Bunyard posits it's likely a mild pathogen at that. He also counts himself among the camp who see similarities between the spread of *Inonotus obliquus* and the *Ambrosiella* sp. It's likely Chaga also is transported by fungi-farming beetles.

Beyond speculation, mycologists have been lucky enough to witness parts of Chaga's reproductive process. After many years of being infected with *Inonotus obliquus*, the host tree suffers heart rot and eventually dies. Between one and four years after the tree's death, the fungi explodes open the

tree's bark to expose spore tubes hanging from the tree. Within just a few days, the spores release and the tubes crumble away. It's quite a sight, notes Bunyard. Unfortunately, sexual reproduction of Chaga is rarely seen and barely known.

Chaga's sustainability also remains to be proven. Some mycologists say harvesting clinkers is bad for Chaga and the tree; others have been “farming” it for years and believe there's no possible way you could exhaust it.

Regardless of *Inonotus obliquus*' status, everyone is eager to get a hand on some. No human trials have proven Chaga's usefulness against cancer, but in vitro and mice studies show real promise.

Bunyard warns foragers to stick to trees known to host Chaga and not be fooled by close imitations. Chaga looks like a charred tumor on a tree. It's commonly found on alders, black cottonwood, various birches, elms, hop-hornbeams, and hornbeams. Watch out for the poisonous black knot of cherry (*Apiosporina morbosa*); Chaga is never found on cherry trees or small



Dr. Patrick Leacock shows members a gilled polypore at the Nov. 6, 2012, meeting.



Dr. Britt Bunyard explains some of the mysteries of Chaga (*Inonotus obliquus*), which is typically seen as a charred looking “clinker” or tumor on trees.

branches. It also never bleeds sap. It should appear black on the outside with more red coloring toward the tree.

To prepare Chaga as a tea, simply dry a clinker in small pieces. Grind these to a fine dust, and brew tea. Some people prefer to add Chai spices but this is not necessary. “It's definitely a sweet spicy taste — not gross like some of the other [medicinal mushroom brews],” notes Bunyard.

Read more about the latest developments in Chaga research in the Fall 2012 special issue of *FUNGI Magazine*.

11th Annual Mushroom Fair Showcases Love for Fungi

Members gathered Oct. 7, 2012, at the Brookside Gardens in Wheaton, Md., to share their love of mushrooms with the greater Washington, D.C., community at the 11th Annual Mushroom Fair. While rain made some of the outdoor activities a little more challenging, overall the event attracted a good number of curious people.

Each year the Mushroom Fair is staffed by volunteers from MAW as an outreach and educational event for the public. For those already invested in mushrooming, the fair is another chance to celebrate mycology.

Guests were impressed by the many mushrooms on display. The slate of events included:

- Lecture, Introduction to the Fungi of the Kingdom Eumycota by William Needham, then-*Sporophore* editor.
- Lecture, Mushrooms of Maryland by Jon Ellifritz, MAW foray chair
- Lecture, Mushrooms, Teenagers and Mycophilia by Ophelia Barizo, a MAW who teaches at Highland View Academy and

recently was named STEM (Science, Technology, Engineering, and Math) Educator of the Year (Some of Barizo's students also displayed their mycology projects at the fair.)

- Forays led by Jon Ellifritz, MAW foray chair, and Mitch Fournet, MAW vice president



Martin Hindel

Martin Hindel poses next to a Berkeley's polypore (*Bondarzewia berkeleyi*).

Sequanota (cont.)

various *Amanita* species, notably the Fly Agaric (*Amanita muscaria*). Lincoff partook in the white-spotted red Amanita during a trip to Siberia. "I found myself bellowing in the woods like I was a wild animal," he recalled. The mushroom gave him "superhuman strength" that caused him to comically break



Willow Nero



Some of the weekend's exciting finds included a cuplike *Ganoderma* (above) and several *Calostoma cinnabarina* (top).

things. Siberians, he said, have good reason to consume the psychoactive mushroom, because it helps them keep warm and stay at work in the harsh winters. "This is what you do when you go to Siberia," he joked. "Sometimes it's just you and the mushroom, and that's it for recreation." He ensured foray participants no one he's encountered who has taken *Amanita muscaria* has enjoyed it.

Besides their mind-altering potentialities, Amanitas on the West Coast have been

responsible for the deaths of many tourists from Asia and in some cases Europe who mistook American Amanitas for a variety of mushroom they ate back home. Many restaurants and parks have started hanging posters warning of the dangerous connection.

Aside from bringing a welcome dose of humor to the foray, Lincoff also regaled participants with a presentation about fungi that attack and are attacked. "They look like innocent little things," he said. "You think they're innocuous — No. They're out there, and they're predators."

Some of Lincoff's examples included:

- Witch's butter (*Tremella encephala*) that commonly parasitizes *Stereum sanguinolentum*;
- *Entoloma abortivum* and *Armillaria mellea*. This relationship was long misunderstood. It's now known the entoloma is being attacked, making "abortivum" a misnomer. "I suggest we call it the pro-choice entoloma," Lincoff quipped.
- Oyster mushrooms

(*Pleurotus spp.*) that trap nematodes for extra nutrition;

- Turkey tail (*Trametes versicolor*) sometimes is attacked by *Hypomyces polyprinus*. Lincoff commented it's corporate takeover out there with mushrooms cannibalizing one another. "It's like Bain Capital," he said. "It just comes in and says, 'You're fired. Goodbye.' It's vicious. Don't turn your back on turkey tail."

Lincoff closed his presentation asking foray participants to get out there. "You'd never watch TV," he said. "These fungi are being preyed on by other organisms and vice versa, and you can watch it!" He shared some foray stories from Central Park, New York City, and said there's no reason not to take a mushroom walk each week, regardless of the season.

Upcoming Events

January 8 — monthly meeting. Cooking demonstrations using preserved, dried, and/or fresh mushrooms from ethnic supermarkets.

February 5 — monthly meeting.

March 5 — monthly meeting.

April 2 — monthly meeting.

May 7 - monthly meeting. Spring Wild Foods Tasting. Location TBD.

Forays

Cold weather in January and February means mushrooms will be few and far between. Regular forays resume in early April with the start of morel season. Forays will be announced through Meetup.com and by email.

While it's still cold, you might try hunting especially after rain and coinciding warmer days. If you find anything of note, keep your fellow members in the loop. Post your finds on MAW's Meetup.com message boards and photo albums.

MAW Celebrates International Food Traditions at Fall Tasting

Willow Nero
Sporophore Editor

MAW members feted their varied ancestries and shared their cultural and adopted mushroom cuisine traditions Oct. 2, 2012, at the fall mushroom tasting, which was slated as the 2012 International Mushroom Food Festival.

“Many members of MAW or their forebears came from different parts of the world to carve out a new life in the New World. This was an event that celebrated their roots,” then-Culinary Chair Daniel Barizo said.

Pascal Couvrer and Jane Lanning from the French Team, Champignon Furieux Francais, tied for first place and the Waldemar Poppe Culinary



Willow Nero

The winning Team Furieux Francais comprised, from left, Pascal Couvrer, Kelly Finn, Eric Malcolm, Jane Lanning, and John Beiteau.

which Barizo attributed to the team’s good coordination and food preparation know-how.

“The French team, with an exceptional chef [Couvrer] and

haute cuisine items on the French team’s menu; mushroom-laden steak, sherry veloute, and pastry weighed to the group’s advantage. Other team members included Kelly Finn and Laura Fenton.

Nontraditional cuisines also

had a strong showing of appreciation. Second place went to Heidi Keine, who as a member of the Silk Road Cooking Brigade prepared Indonesian Mushroom Kebabs with a peanut sauce. Lisa Beardsley-Hardy, with the European eclectic team, won the most unique dish competition with her tea-smoked chicken of the woods dip appetizer, which nearly

transformed ordinary sulphur shelf mushrooms into smoked salmon.

Pretty much everything the two-person Oktoberfest Team of Sheri Kayam and Ben Kaplan prepared was noteworthy, especially their black forest cake log complete with hand-shaped confectionary mushrooms.

Gruppos Italiani Funghi led by MAW Treasurer John Harper surely won votes for being the only team to serve morels, though their hand-made raviolis and savory hen of the woods cookies made by Rimas Csikotas and his family also turned heads.

Due to the enormous success of the fall mushroom tasting, board members are exploring alternative locations that can better accommodate demand for entry as well

Mushroom Crepes

- ¾ cups flour
- ⅛ teaspoon salt
- 3 eggs, beaten
- ¾ cup milk

Sift together flour and salt, then blend in eggs, milk, and butter, in that order. Let the mixture stand for 30 minutes before making your crepes.

Filling

Sauté for 3 minutes 2 pounds of fresh mushrooms, chopped with 2 mashed cloves of garlic and 1½ sticks of butter. Add ½ cup dry sherry, salt, and pepper, to taste, and 4 tablespoons chopped parsley. Fold in 4 tablespoons spring onions or chives and 1 cup sour cream. Heat, then fill each crepe. Fold, and top with filling.

(Recipe contributed by Jane Lanning, winner of the Waldemar Poppe Culinary Award for 2012.)

Award. They prepared scallops topped with chanterelles and black trumpets and mushroom crepes, respectively. Champignon Furieux Francais also received the award for best team,

a great leader, Eric Malcolm, who coordinated the dishes well among the members, resulted in the team being voted the best team at the event,” Barizo said.

Scallops weren’t the only



Right: Daniel Barizo: Top Left and Right, Willow Nero

(above) Sheri Kayam of the Oktoberfest Team shows off her black forest cake log with edible mock mushrooms. Lisa Beardsley-Hardy (top right) spoons tea-smoked chicken of the woods dip onto crackers (top left.)

as the electric load required by the many electric ovens, hotplates, and microwaves members use to prepare their mushroom dishes.

Special thanks go to Phillips Mushroom Farm for their generous donation of exotic mushrooms for the club's tasting meetings. Britt A. Bunyard, editor of *Fungi Magazine*, also donated a year's subscription as a prize, and Barizo personally provided *Mushrooms of North America* by Roger Phillips as a prize.

From the President (cont.)

Continued from page 1 number of preparers who work and would not be able to take time off for advanced preparation of their dishes.

The Board began to discuss these options at our meetings on Dec. 5, 2012, but we need to know your thoughts and ideas before we meet again, potentially on Jan. 23. We would like you to tell us what you think the purpose or focus of tastings should be. Is it primarily social? To learn tastes of wild mushrooms? For exploratory or instructive reasons? To build revenue and membership or for another purpose?

A proposal of changes you'd like to see implemented for tastings will draw a high priority to the board. In

any case, tell us which of the three options and subsets (1, 2a, 2b, 2c, or 3) you would most support and which, if any, you would deem unacceptable. We need help as well. Please suggest venues (churches, community centers, fire houses, park facilities, etc., that you know) for our consideration of Option 2. Email our Culinary Chair Cody Waisenen (culinary@mawdc.org) with your thoughts. If you would, additionally like to discuss thoughts with any board member please contact us by phone or in person at the Jan. 8 meeting.

They were still coming up after Christmas day, so Good Hunting,
— Bruce

Indonesian Mushroom Kebabs

Any kind of firm mushroom can be used. Heidi Keine (right) used portabella mushrooms in her winning dish.



Marinade

- 3 tablespoons ketjap manis (this is a sweet soy sauce; you may substitute regular soy sauce and palm sugar)
- 3 cloves garlic, crushed
- 1 2-inch piece of fresh ginger, grated
- 2 teaspoons ground coriander seed
- 1 teaspoon ground cumin
- 3 tablespoon oil
- a pinch sambal oelek (or substitute red pepper flakes)
- a pinch lemon juice

Spicy Peanut Sauce

- Chunky peanut butter
- Coconut milk
- Garlic
- Brown sugar (or palm sugar)
- Lemon juice
- Red pepper flakes
- Ground cumin
- 3 very finely sliced kaffir lime leaves (optional)

Cut the mushrooms into pieces and marinate them for at least one hour. Put them on skewers soaked in water and grill them till nicely browned. Spoon hot peanut sauce over the skewers and serve.

Note: The proportions of the individual ingredients can be altered according to personal taste. I believe there is not much you can do wrong.

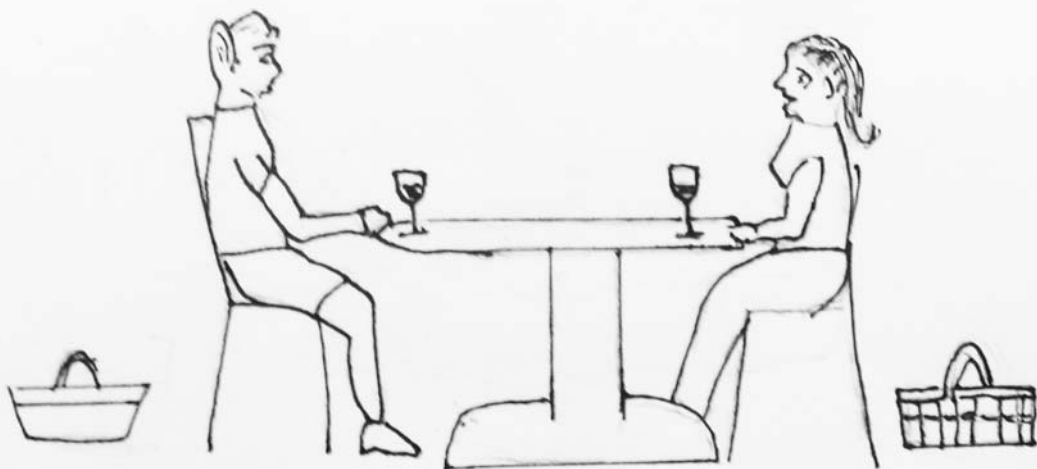
(Recipe contributed by Heidi Keine, second-place winner.)

Fungus Notebook (cont.)

Continued from page 2 from this fungal group starting from the first isolation of Ganoderic acids A and B in 1984 (these numbers vary according to the source — Stamets lists 119 triterpenes and 100 polysaccharides in *Mycelium Running*). Triterpenes are precursors to steroids in both plants and animals and very generally have cytotoxic (cell killing), liver protecting and lipid lowering effects. Polysaccharides are much more generic, consisting of long chains of carbohydrate molecules such as cellulose and chitin. In the case of the *Ganoderma* fungi, the polysaccharides are found to be carcinostatic; they inhibit the growth of cancerous tumors. Laboratory studies of the compounds that can be derived from *Ganoderma* fungi and their effects on a wide-range of medical problems are legion and on-going. Anti-tumor behavior has been demonstrated in ganoderic acids T, V, W, X, Y and Z, a property that is attributed to the stimulation of the body's own production of lymphocytes as opposed to a direct effect. Ganodermic acid S inhibits the aggregation of platelets and could thus be beneficial in as an anti-clotting agent to prevent embolism-induced strokes. In what may also be related to coagulation,

Ganoderma acid F acts to lower blood pressure. Several derivatives including Ganoderic acids R and S and Ganosporeric acid A have been shown to improve liver function, a finding that supports the traditional Chinese use of *G. lucidum* to treat hepatitis.

According to Chang and Miles in *Mushroom*, *Ganoderma* fungi were used in traditional Chinese medicine "to improve intellectual capacity and memory, to promote agility, to lengthen life span, and to relieve hepatopathy, nephritis, hyperlipemia, arthritis, asthma, gastric ulcer, arteriosclerosis, leukemia, diabetes and anorexia." The "mushroom of immortality" may in some ways be true to its metaphor in promoting longevity, lending credence to (mostly Asian) health regimen of daily *Ganoderma* tea to offset the ravages of time and age. While there is certainly nothing inimical to this practice, a cautionary note is proffered: there is at this juncture a great deal of uncertainty concerning geographic origin and species. In addition, the chemical complexity of the various *Ganoderma* species is daunting and therefore attributing syllogistic relations to a specific disease is at this point dubious. An elixir perhaps, but a medicine no.



I CAN UNDERSTAND THAT PEOPLE MIGHT NOT LIKE MUSHROOMS, BUT THEY SEEM SO SMUG ABOUT IT.

Jim Sherry.