

Native Medicinal Mushrooms

An overview of their therapeutic potential

By Fred Gillam



Background: in November 2015, The Wild Side of Life hosted the First UK Medicinal Mushrooms Conference in Lincolnshire. The sell-out conference, opened by Roger Phillips, author of "Mushrooms and Other Fungi of Great Britain and Europe", was a great success

and brought together medical herbalists, nutritional therapists, biochemists, mushroom growers, foragers and people with an avid interest in mushrooms and healing. Speakers gave presentations on materia medica, fungal biochemistry, the latest medical research, sustainable harvesting and how mushrooms influence the immune system. A clear picture emerged as a result of this unique meeting of disciplines, revealing that the way in which mushrooms can influence and benefit the human body is a function of their role in the wider ecosystem. Fred Gillam takes up the story.....

Fungal preparations are found in the folk materia medica of many traditional cultures and they hold a prominent position in both traditional and modern far-eastern medicine. Globally, a vast amount of money is being invested by the pharmaceutical industry to develop new drugs from mushrooms as discovery after discovery points to them being a treasure trove of new compounds and uncharted medicinal effects.



Turkey Tail Mushroom

In the context of western natural medicine and herbalism, medicinal mushrooms are definitely establishing their place. These days it is common to find turkey tail mushroom in the dispensary of a herbalist in the UK, and like the herbs the

mushrooms are treated as 'whole' material with many constituents that act together in symphony. With only a small number of exceptions, they are very safe, well tolerated and liked by patients. In fact many of them are also used as gourmet foods.

Perhaps one of the most surprising things about medicinal mushrooms is their availability. Many species with potent medicinal activity are native to the UK and based upon the fast pace of research the list is growing year-on-year. It is possible to forage for medicinal mushrooms and to wildcraft remedies from them.

Mushroom structural compounds (the key to immune health)

Many of the immunological effects of mushrooms are derived from cell wall structural components known as 1,3-beta-glucans. These compounds (polysaccharides) are built from chains of glucose molecules and they occur in a vast array of chain lengths. Uniquely in fungi they



Chaga (*Inonotus obliquus*)

also occur with certain protein bound functional side units. The 'spectrum' of beta-glucan compounds present varies between mushroom species. Much of the pharmacological research taking place focuses on isolating one fraction of this spectrum from a particular mushroom and determining its effectiveness against particular pathogens or cancer cell lines. Mushroom beta-glucans can be difficult to extract from whole fungi as they are not soluble in ethanol and often require long decoction times in water.

Mushroom functional compounds – a range of aliphatic and aromatic compounds.

Many compounds present in mushrooms - for example the di, tri and sesquiterpenes, the neurotransmitters, statins, sterols and enzymes, possess a wide range of therapeutic actions in the different systems of the

A FEW EXAMPLES OF MEDICINAL MUSHROOMS NATIVE TO THE UK		
<i>Species / Host</i>	<i>Attributes</i>	<i>Possible Indications</i>
Reishi*(rare) Ganoderma lucidum / Oak	Regulates blood sugar, lowers cholesterol, circulatory tonic, anti-bacterial, anti-viral, hepatoprotective, blood thinning, immune modulating, anti-inflammatory, adaptogen, anti-cancer	Diabetes, hypercholesterolaemia, hepatitis, tuberculosis, HIV, rheumatoid arthritis, Herpes simplex, stress, auto-immune (unspecified), cancer
Chaga** (common only in the far north & Scotland) Inonotus obliquus / Birch	Regulates blood sugar, oxidative stress, anti-bacterial, anti-viral, immune modulating, anti-cancer, adaptogen, rich in anti-oxidants	Diabetes, infections, Herpes simplex, stress, recovery from radiotherapy, Herpes simplex, psoriasis, cancer (melanoma, brain, lung, stomach)
Turkey tail Trametes versicolor / dead wood	Immune modulating, source of Polysaccharide K – or 'Krestin'	Chronic infections – anecdotally for chest infections / pleurisy. Cancer of the stomach, colon, lung
Tinder hoof Fomes fomentarius / Birch	Anti-parasitic, anti-bacterial, anti-inflammatory, immune modulating	Chronic infections – anti-tubercular, arthritic inflammation, bacterial infections, intestinal parasites, helps to regulate blood sugar
Jelly ear Auricularia auricula-judae / Elder	Cooling and mucilaginous, anti-inflammatory, anti-cancer, blood thinning, lowers blood sugar	Peritonsillar abscess (quinsy), inflammation, hot conditions that call for lowering of metabolism and reduction of inflammation
Lion's mane* (rare) Hericium erinaceus / Beech	Promotes nerve growth factor production, source of vitamin A and lactase, immune modulating	Nerve damage, cognitive impairment, memory loss, dementia, immune modulating
Common oyster Pleurotus ostreatus / Beech	Source of lovastatin, immune modulating	As it is a source of statins it can be used in cholesterol management
Bay bolete Boletus badius / various	Source of GABA, theanine, serotonin, melatonin	High cholesterol, low grade chronic pain, low mood and depression, low cognitive function, lethargy and SAD
* REISHI AND LIONS MANE ARE RARE IN THE UK and should not be harvested from the wild. Excellent biodynamically grown mushrooms from UK native stock are available from Matthew Rooney at www.mushroomtable.com . Matthew's strain of reishi is named after him as var 'Rooney' by Kew. ** CHAGA IS ONLY LOCALLY COMMON IN THE UK and must be harvested sustainably. It can be harvested as a long rotation crop (typically 4 years) where the conks will grow back if cut correctly. Care should be taken over sources.		

body. Many of these compounds can be extracted well in ethanol. A double extraction process can be performed at home to utilise both the ethanol soluble functional compounds and the water soluble beta-glucans in one preparation. The resulting 'broad spectrum extract' offers wide ranging therapeutic benefit and is simple to make in the kitchen.

Double extraction procedure for making a broad spectrum extract - method

The mushrooms are first dried and then broken up or ground to increase surface area. They are tinctured for around 6 weeks in ethanol (minimum 40% abv but 65 to 75 abv is preferable) before filtering. Both the menstruum and the marc are retained. This stage of

the process extracts the ethanol soluble compounds, many of which would be volatilised or de-natured by the next stage of the process.

Making turkey tail tincture in preparation for a broad spectrum extract

After obtaining measurement of the menstruum obtained and allowing a little extra to compensate for evaporation, measure out an equal amount of water. The marc is slowly decocted for at least an hour in this water before filtering once again. At this point the marc can be discarded or added to the kitchen compost. The menstruum from both processes is combined in a 1:1 ratio and bottled. It should remain useful for a very long time.

Do not overlook the humble white button mushroom



Turkey Tail Tincture

A 2009 case control study of 2,018 Chinese women correlated a large decrease of the incidence of breast cancer in women who consumed mushrooms. Daily consumption of mushrooms was associated with a 64% reduction in the incidence of breast cancer compared to the control group. Those who combined a mushroom diet with daily green tea consumption reduced their risk of breast cancer by almost 90%.

The humble white button mushroom, *Agaricus bisporus*, is full of therapeutic potential. It has been found to contain significant amounts of lovastatin which supports cholesterol regulation, and eating mushrooms is not associated with the range of side effects commonly reported by those who take synthetic statins. White buttons also contain gamma-aminobutyric acid (GABA). Regulating muscle tone and inhibiting over excitation in the CNS, this compound also helps to smooth out the pain response and improves relaxation.

Button mushrooms should not be consumed regularly when raw as they contain the carcinogen agaritine. It is not completely destroyed by heating but is reasonably well denatured. Because white button mushrooms are saprobes, i.e. part of the great army of composters in our world, they have evolved a range of enzymes that enable them to digest their food. They are a good source of phytases and proteases and therefore ideal for grain and seed allergy sufferers. Fungal proteases may also be a part of the regulatory mechanism that keeps the balance between fungi and bacteria in our gut. As a wheat allergy sufferer myself, I have found this mushroom to be very useful.

Conclusion

Animals and fungi share a common genetic ancestry (2.8 billion years ago) and there are some similarities in biochemistry between them. Fungi even synthesize Vitamin D2 in their skins from ergosterol, much as we synthesise D3 from the similar compound, cholesterol.

A healthy gut biome has a fungal component that generates a reserve of our own beta-glucans, fungal enzymes and neurotransmitters and is a vital component not only of digestion but of health and resilience. As usual, nature offers us the best examples of symbiosis at work and when we have a dysfunctional process at work in our bodies, we can sometimes learn from similar interactions taking place elsewhere in the ecosystem. Hence, if the human biome is producing insufficient enzymes of a certain type we can work on ourselves to restore that biome, but we can also find remediation by introducing similar materials derived from similar fungal/bacterial processes elsewhere.

Fungi ought to cover practically every surface on earth. They are the unseen mediators of food chains, breaking down and re-distributing that which has been built up, and creating beneficial relationships with biological partners across the plant and animal kingdom assisted by helpful bacteria. We interact with them biologically at a very profound level and I believe that by studying their roles in nature, we can grow to understand their role within ourselves. We too are nature.



Changa Coffee

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- Zhang M., Huang J., Xie X., Holman C., Dietary intakes of mushrooms and green tea combine to reduce the risk of breast cancer in Chinese women, *International Journal of Cancer*, vol. 124 issue 6: 1404-08.
- Fred Gillam, as the young son of a head gardener on a country estate, developed an interest in edible and medicinal plants from an early age and he was already a keen mushroom forager at the age of 14.

After a career lecturing in and practising horticulture, forestry and conservation, his interest in herb-

alism deepened and he undertook a 3-year herbal apprenticeship with Sarah Head at the Springfield Herb Sanctuary.

Fred regularly appears on local and national radio talking about wild food and hedgerow medicine. He presented a series of three lectures to the Bath Royal Literary and Scientific Institution on ethnobotanical topics and with his partner he runs a voluntary herbal dispensary for a community of friends, family and villagers in Wiltshire.

Fred's business, The Wild Side of Life, (<http://www.thewildsideoflife.co.uk/>) is responsible for organising the UK Medicinal Mushroom Conference (see Diary Dates for more information) and for running herbal medicine wildcrafting weekends and food foraging courses that come recommended by BBC Countryfile Magazine. He is the author of *Poisonous Plants in Great Britain*.

Herbal First Aid for the Home with 7Song

By Alicia Sawaya



The event was held as a two-day course on June 11th and 12th at Monkton Wyld Court, Dorset, a rural earthy setting perfect for a herbal event. 7Song's Herbal First Aid course was organised by the UK forager Robin Harford.

The two days were packed with herb walks, lively humour and real hands-on Herbal wisdom from 7Song in the first aid sector. 7Song's unique approach to teaching left us hungry for more, and yet knowing we had digested a delicious meal of knowledge that we would take home with us and be able to use.

7Song is an internationally respected herbalist who rarely visits the UK so this was a quickly booked event. 7Song has been studying plants and their medicine for over 20 years which included his deep love for botany from his roots in Long Island, NY. His herbal education led him to the California School of Herbal Studies with Rosemary Gladstar in 1983 and later the Southwest School of Botanical Medicine with Michael Moore in 1994 & 95.

7Song teaches at many schools and conferences throughout the US. He is a herbal practitioner

and Director of Holistic Medicine at the Ithaca Free Clinic which 7Song wholeheartedly champions... Free Medicine. He has also taught and directed The Northeast School of Botanical Medicine for 13 years.

If you were unfortunate not to attend this event do check out 7Song's website for very useful information and a calendar of events and training programs at www.7song.com

Also check out Robin Harford's website for details of upcoming courses, or to sign up to his newsletter <https://www.eatweeds.co.uk> or <https://www.foragingcourses.com>

