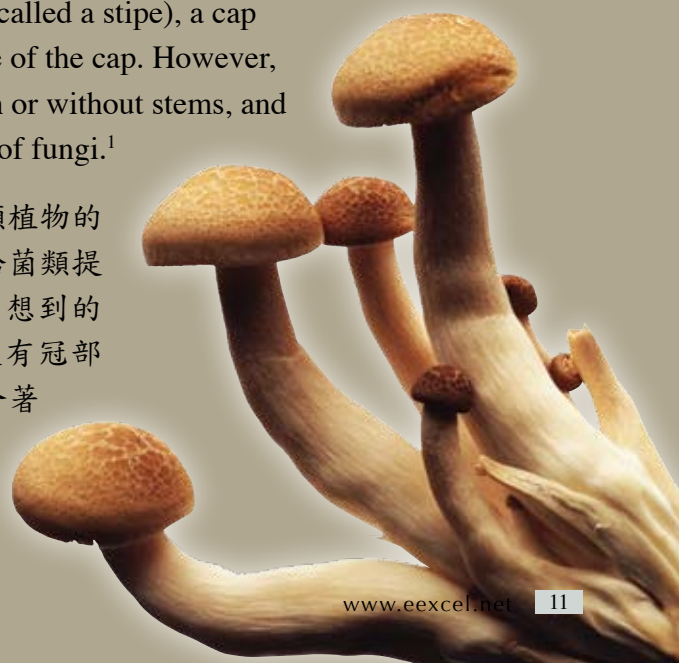
Fabulous Fungi
完美的菌類植物

A ‘mushroom’ is the fleshy, spore-bearing, fruiting body of a fungus that usually appears above ground or on the fungus’s food source, such as a tree. When most of us think of mushrooms, we usually think of them as having a stem (called a stipe), a cap (called a pileus) and gills (called lamellae) on the underside of the cap. However, mushrooms also include a wide variety of gilled fungi, with or without stems, and the fleshy, woody or leathery fruiting bodies of other types of fungi.[1]

蘑菇，是一種以孢芽繁衍的肉質植物，很多菌類植物的形狀都很像果實，它們通常生長在地面上，或者可以給菌類提供豐富營養的場所-比如樹上。當多數人提起蘑菇時，想到的都是有一個莖(叫做蕈柄)，和一個冠(叫做傘狀帽)，還有冠部下方的褶狀薄片(叫做菌褶)。其實，蘑菇這個稱謂包含著十分廣泛種類的菌褶菌類，有的有莖，有的無莖，有的是肉質的，有的是木質的，還有的是皮質的。[1]



1. http://en.wikipedia.org/wiki/Mushroom

Many mushrooms contain powerful phytochemicals, in particular, and most importantly, polysaccharides with anti-tumor and immune system stimulating properties. Polysaccharides are large, complex, branched, chain-like molecules built from many—from 200 to over a thousand—smaller units of sugar molecules. The polysaccharide called beta-glucan (found in several different mushrooms) has been shown to stimulate the immune system and activate macrophages and natural killer cells (NK cells), leaving the body better equipped to fight off infectious agents and kill malignant cells it may later encounter.

In nature, mushrooms play the role of nature's recyclers. They secrete digestive enzymes into their environment and then absorb the products of digestion. This process decomposes dead plant matter that would otherwise accumulate to unmanageable levels. The process also returns nitrogen, phosphorus, and other nutrients to the soil. Over millennia, in order to survive, mushrooms have developed natural substances that prevent microorganisms—bacteria and viruses—from attacking them. By consuming these mushrooms, humans also benefit from these antimicrobial substances.

許多蘑菇都含有效益強大的植物性營養素，尤其重要的是，它們含有具備抗腫瘤和刺激免疫系統特性的多醣體。多醣體由大量的從二百到上千個小單元糖分子組成大型枝狀的連鎖分子。被稱為酵母葡聚糖的多醣體(在一些不同的蘑菇中均有發現)，有刺激免疫系統、活躍巨噬細胞及天然殺傷細胞(NK細胞)的作用，它們會將身體裝備得更加強健，以抵抗可能發生的炎症並殺死惡性細胞。

在自然界，蘑菇扮演著將大自然循環再利用的角色。它們會向自己週圍的環境中分泌消化脢，然後吸收消化的衍生物。這一過程可以分解死亡植物，否則那些死亡的植物會累積至難以控制的程度。這一過程還會將原來出於土壤中的氮、磷，和其它營養素再交還給土壤。在幾千年後之前，蘑菇為了能夠生存下來，面對細菌和病毒的進攻，而形成了天然的自我微生物防禦物質，這些抗病菌物質同樣也可以使人體獲益。

In fact, mushrooms have shown...

事實上，蘑菇具有諸多的特別功效

■ **Activity against antibiotic-resistant bacteria**

- The European Ganoderma species, Ganoderma pfeifferi Bres. inhibits the growth of methicillin-resistant Staphylococcus aureus and other bacteria.[2] (A new government report suggests that more than 90,000 Americans annually get an invasive form of methicillin-resistant Staphylococcus aureus (MRSA), which can be deadly.[3])

■ **Antiviral activity**

- Ganoderma lucidum contains substances that have been shown to be active as antiviral agents against HIV-1.[4]
- Anti-HIV activities were reported for mycelial culture medium of Lentinula edodes.[5]
- The protein-bound polysaccharides PSK and PSP from Trametes versicolor were also found to have an antiviral effect on HIV and cytomegalovirus in vitro.[6]

■ **Ability to stimulate the non-specific immune system through the stimulation of the body's defense mechanisms**

- Lentinan from Lentinula edodes, schizophyllan from Schizophyllum commune, MD-fraction from Grifola frondosa and compounds from Trametes versicolor (PSK and PSP) are already in clinical use, especially in Japan and China, for immunotherapy that complements surgery, radiotherapy and chemotherapy.[7]

■ **Inhibition of allergic reactions**

- Some compounds from Ganoderma lucidum inhibit histamine release from rat mast cells.[8]

■ **Influence on blood lipids**

- Some triterpenes from Ganoderma lucidum inhibit the

■ **抵禦抗藥性細菌**

- 歐洲種靈芝，即弗氏靈芝，可抑制耐甲氧西林金黃色葡萄球菌和其它病菌[2]的生長（一份新的政府報告指出，每年約有超過9萬名美國人遭到致命的耐甲氧西林金黃色葡萄球菌的攻擊[3]）

■ **抗濾過性病原體**

- 靈芝中所含有的物質，顯示出具有抗濾過性病原體的活性，可以對抗1型HIV病毒。[4]
- 香菇菌絲培養基的報告顯示，它具有抗免疫缺陷病毒抗體（HIV）的特性。[5]
- 白腐菌中的蛋白結合多醣體PSK和PSP對於HIV和試管中細胞巨大型病毒，具有抗濾過性病原體的作用。[6]

■ **通過對身體抵禦機製的刺激，而刺激身體非特異性免疫系統的能力。**

- 蘊含在香菇中的香菇多糖，裂褶菌中的裂殖藻多糖，灰樹花中的麥特消（MD-fraction）和白腐菌中（PSK和PSP）的混合物，已經被臨床使用，尤其是在日本和中國它們被用來作為外科手術、放射治療和化學治療的輔助性免疫治療。[7]

■ **抑制過敏反應**

- 靈芝中的某些複合物可抑制老鼠肥大細胞分泌的組胺。[8]

■ **影響血脂**

- 通過抑制血管收縮素轉化成酵素，或抑制血小板凝聚，靈芝中的一些_烯成分可預防動脈粥樣硬化，而靈芝中的另一些帖烯成分可抑制膽固醇[9]的生物合成。

2. Mothana RAA, Jansen R, Ju¨lich W-D, Lindequist U. Ganomycin A and B, new antimicrobial farnesyl hydroquinones from the basidiomycete Ganoderma pfeifferi. J Nat Prod 2000;63:416–8.
3. Associated Press. How to avoid dangerous staph infection. Oct. 16, 2007 http://news.yahoo.com/s/ap/20071016/ap_on_he_me/staph_infections_tips;_ylt=AkoiPb2IaYwvepBcBnRRN_YDW7oF
4. Ulrike Lindequist, Timo H. J. Niedermeyer and Wolf-Dieter Julich. The Pharmacological Potential of Mushrooms. eCAM 2005;2(3)285–299.
5. Tochikura TS, Nakashima H, Ohashi Y, Yamamoto N. Inhibition (in vitro) of replication and of the cytopathic effect of human immunodeficiency virus by an extract of the culture medium of Lentinus edodes mycelia. Med Microbiol Immunol 1988;177:235–44.
6. Tochikura TS, Nakashima H, Hirose K, Yamamoto N. A biological response modifier, PSK, inhibits human immunodeficiency virus infection in vitro. Biochem Biophys Res Commun 1987;148:726–33.
7. Ulrike Lindequist, Timo H. J. Niedermeyer and Wolf-Dieter Julich. The Pharmacological Potential of Mushrooms. eCAM 2005;2(3)285–299.
8. Kohda H, Tokumoto W, Sakamoto K, Fujii M, Hirai Y, Yamasaki K, et al. The biologically-active constituents of Ganoderma lucidum (Fr) Karst—histamine release-inhibitory triterpenes. Chem Pharm Bull 1985;33:1367–73.

biosynthesis of cholesterol,[9] while others contribute to atherosclerosis protection by inhibiting angiotensin converting enzyme (ACE*) or platelet aggregation.[10]

■ Hypoglycemic activity

- Glucans from Ganoderma lucidum, coriolan from Trametes versicolor and an acidic glucuronoxylomannan from Tremella aurantia Schwein exhibited hypoglycemic effects in several test systems and ameliorated the symptoms of diabetes.[11]

■ Anti-inflammatory activity

- Grifola frondosa contains ergosterol, ergosta-4-6-8, 22-tetraen-3-one and 1-oleoyl-2-linoleoyl-3-palmitoylglycerol, which inhibit COX 1 and 2 activity.[12]
- Ganoderic acids isolated from Ganoderma lucidum showed a stronger effect in animal models than aspirin.[13]

This is just a fraction of the research that has been done, or is currently under investigation, on mushrooms, but we have far to go to discover all that mushrooms have to offer us. It is estimated that there are 140,000 different kinds of mushrooms on Earth—but only approximately 10 percent (14,000) are known.[14] Science has collected data on mushroom polysaccharides and phytochemicals from more than 650 species[15] —but that's less than one-quarter of the known species! Of these studied mushrooms, over 200 are already known to support good health.[16] That means almost one-third of all the mushrooms that have been studied have proven to be beneficial. Just imagine if that holds true for the more than 139,000 mushrooms that haven't been studied—or even discovered yet!

So, add a few mushrooms to your diet—portobello, oyster, crimini, shiitaki, morels, truffles and even the ubiquitous button mushroom. They will bring an incredible array of powerful phytochemicals to the table for your continued health!

This article provides important, educational information only; it is not intended to promote any E. Excel products or theory.

* Angiotensin converting enzyme (ACE) acts as a vasoconstricting agent, causing blood vessels to narrow. Narrowing the diameter of the blood vessels sends the blood pressure up.

9. Komoda Y, Shimizu M, Sonoda Y, Sato Y. Ganoderic acid and its derivatives as cholesterol synthesis inhibitors. Chem Pharm Bull 1989;37:531–3.
10. Morigiwa A, Kitabatake K, Fujimoto Y, Ihekawa N. Angiotensin converting enzyme inhibitory triterpenes from Ganoderma lucidum. Chem Pharm Bull 1986;34:3025–8.
11. Ulrike Lindequist, Timo H. J. Niedermeyer and Wolf-Dieter Julich. The Pharmacological Potential of Mushrooms. eCAM 2005;2(3)285–299.
12. Zhang Y, Mills G, Nair MG. Cyclooxygenase inhibitory and antioxidant compounds from the mycelia of the edible mushroom Grifola frondosa. J Agric Food Chem 2002;50:7581–5.
13. Koyama K, Imaizumi T, Akiba M, Kinoshita K, Takahashi L, Suzuki A, et al. Antinociceptive components of Ganoderma lucidum. Planta Med 1997;63:224–7.
14. S. Wasser. Medicinal mushrooms as a source of antitumor and immunomodulating polysaccharides, Applied Microbiology and Biotechnology, Nov 2002.
15. S. Wasser, Medicinal mushrooms as a source of antitumor and immunomodulating polysaccharides, Applied Microbiology and Biotechnology, Nov 2002.
16. Toews, Victoria Dolby. Power your immunity with mushrooms, Better Nutrition, April, 1999.

■ 降低血糖

- 有幾項檢測的結果表明，靈芝中的葡聚糖，白腐菌中的雲芝多糖，和銀耳中的酸性多醣顯示出降低血糖的效果，能減輕糖尿病的病症。[10]

■ 抗炎症

- 灰樹花中含有麥角固醇、麥甾4.6,8、麥角甾四烯-3-酮和1-oleoyl-2-linoleoyl-3-palmitoylglycerol，這些都會抑制環氧化胺1和2的活力。
  - 在動物試驗中，靈芝中的靈芝酸顯示出比阿司匹林更強的效果。

以上這些只是已經完成的菌類研究成果的一部分，或者說只是現在正在進行的一些對菌類的研究，而我們對於能夠接觸到的菌類的探討研究，還差之千里。據估計，世上大約有140000種不同的蘑菇，而現如今，我們知道的只有大約百分之十(14000)。科學研究收集到的有關菌類的多糖體和植物性營養素的資料 雖然超過了650種，但也還是少于所掌握的品種的四分之一！在已經研究過的蘑菇中，有200多種已知是有助於人類健康的。也就是說在已經研究過的蘑菇中，我們知道其中有近三分之一的蘑菇已被證實對人類是有益的。那麼，請想象一下如果是這樣，那剩下的139000多種尚未研究的呢，還有那些尚未被發現的呢，前景不可估量啊！

所以，請在您的飲食中加入一些菌類食物吧，如褐菇、蠔菇、義大利菇、冬菇、羊肚菌、松露，甚至是隨處可見的草菇都可以。它們會在您的餐桌上為您提供大量的強效多糖體，有助於您持續長久的健康！

此文所刊載內容僅提供重要知識信息，不作為推銷丞燕產品或理念之用途。