



AMERICAN  
BOTANICAL  
COUNCIL

Post Office Box 144345  
Austin, Texas 78714-4345  
Phone 512 926-4900  
Fax 512 926-2345  
Email: abc@herbalgram.org  
www.herbalgram.org

Mark Blumenthal  
Editor

Wayne Silverman, PhD  
Underwriting Coordinator

Betsy Levy  
Densie Webb, PhD  
Leela Devi, MSN, RN  
Summary Writers

Karen Newton  
Database Manager

Susan McFarland  
Ginger Webb  
Co-coordinators

Dawnelle Malone  
Research Assistant

The American Botanical Council provides this summary and the enclosed article as an educational service. By providing this article, ABC does not warrant that the data is accurate and correct, nor does distribution of the enclosed article constitute any endorsement of the information contained or of the views of the authors.

ABC does not authorize the copying or use of the original articles. Reproduction of the summaries is allowed on a limited basis for students, colleagues, employees and/or customers. Other uses and distribution require prior approval.

---

# HERBCLIP

---

FILE: · Maitake (*Grifola frondosa*)

DATE: September 24, 1988

HC 071388

RE: Immune Activity of Maitake

Schar, Douglas. *Grifola frondosa*: A 'New' Immunostimulant? *British Journal of Phytotherapy*, Vol. 4, No. 4, pp. 168-175, Winter 1997.

This overview of the literature pertaining to the fungus *Grifola frondosa*, (commonly known as hen-of-the-woods or maitake) and its use as an immune stimulant, includes an interesting of literature references. The author, however, makes some serious errors in covering the topic, even referring to the fungus as a "plant." He is currently working on a book about maitake.

Maitake grows widely but not abundantly throughout North America, Europe and Asia. A saprophytic fungus, its usual host trees are oaks and other hardwoods, although this author says it occasionally grows on coniferous trees. Maitake fruiting bodies are composed of dozens of greyish fronds spring from a common base; single specimens can weigh up to a hundred pounds, although 5 to 10 pounds is typical. The mushroom is deliciously edible when tender. Maitake has been cultivated since the 1970's, making the mushroom much more widely available.

The article begins with a discussion of the history of European use and research on immunostimulating mushrooms that largely disregards the vast amount of medicinal mushroom research conducted in Asia. This is notable, since most of the later citations in this article draw on Japanese research. The author's failure to even mention shiitake (*Lentinula edodes*) in this section is striking. Of the author's list of seven polypore mushrooms and research on their antibacterial action, three were investigated by a European in 1946 and four by a Chinese researcher in 1989.

The following compounds have been found in maitake: amino acids, polysaccharide hydrolases, lignin hydrolases, proteases, haemagglutinin lectins, triglycerides and fatty acids, vitamins B1 and B2, provitamin D, potassium, phosphorus, magnesium, calcium, sodium, zinc, nucleotides, several other acids, and several sugars.

Several studies suggest that maitake polysaccharides stimulate macrophage and T-cell action. The author paraphrases one study in the following way: tumor-bearing mice whose immune system functions were blocked by an

immunosuppressive drug were injected with a maitake extract; it did not effectively inhibit tumor growth. Next, tumor-bearing mice treated with immune-system *stimulating* drugs were given maitake extract; the author says the “extract was slightly more successful in reducing tumor size.” Something seems to have been lost in his interpretation; based on the results, it could easily be concluded that the maitake extract had no effect at all. The author says that to date, maitake research has been carried out with animals. He calls for “full-scale human clinical trials.”

Some researchers have further theorized that intestinal bacteria could break maitake saccharides, which are too large to be absorbed by the gut, into smaller sugar molecules. When these smaller molecules leave the stomach and enter circulation, some investigators believe they bind with a protein and that the body mounts an immune system response against the new molecule.

Maitake may elicit the most powerful immune system response of any of the medicinal mushrooms that are widely available. Compared directly with shiitake, *Agaricus bisporus*, *Pleurotus ostreatus*, *Flammulina velutipes*, *Pholiota glutinosa*, *Tremella fuciformis*, *Auricularia minor* [Ed. Note: we don't know this species], and *Volvariella volvacea*, maitake most effectively retarded cancer growth. In an animal trial maitake reduced tumors (it isn't clear whether in number or size) 86.6 percent, compared with shiitake's 54.4 percent. —*Betsy Levy*

Bin #141