



Welcome to the third issue of Mycology News, a newsletter dedicated to the dissemination of information on the clinical use of mushroom nutrition. In this third edition, the focus is on the use of mushroom nutrition in the treatment of chronic fatigue, and in particular on the mushroom *Coriolus versicolor*, also known as *Trametes versicolor*.



Mushroom Nutrition in the Treatment of Myalgic Encephalomyelitis (ME)/Chronic Fatigue Immune dysfunction syndrome (CFIDS)

CFIDS / ME is a complex clinical syndrome, possibly of viral origin, characterised by incapacitating fatigue, neurological problems, and a range of other symptoms.

The main symptoms of ME/CFIDS are:

Marked muscle fatiguability (often with myalgia)
Low grade fever
Memory loss
Changes in mood
Sleep disorders
Coldness of the extremities
Sweating
Pallor and sluggish pupils

Clinical examination often reveals enlarged, tender lymph nodes in the left supraclavicular fossa. In addition, patients have increased reflexes and often an inability to maintain the Romberg stance position. Although the precise cause is unknown and is probably not one, but a culmination of many causes, a variety of viruses have been implicated in the development of CFIDS, including:

Herpes viruses-EBV-CMV
Herpes Simplex
Human Herpes 6 (HHV6)
Polio
Coxsackie
Adenoviruses
Retroviruses

Other causes may include chemical exposure (i.e. pesticides and organic solvents exposure).

The value of mushroom nutrition in cases of CFIDS/ME associated fatigue stems from their unique combination of therapeutic properties:

Immune Modulation

The long chain polysaccharides found in the various medicinal mushrooms have been shown to be potent immune modulators, boosting anti-viral activity of the host immune system.

Energy enhancing

In China and Japan mushroom nutrition has long been used to treat cases of fatigue. In particular the combination of Reishi (Ganoderma) and Cordyceps has a marked effect on the lungs and Cordyceps on its own has been used extensively to increase endurance and ward off fatigue in athletes (see previous editions).

Detoxifying

Mushrooms are the ultimate scavengers and in nature tend to attract high levels of heavy metals and other toxins (MRL products are produced on organic substrate).

Mood Enhancing

Their ability to cleanse the psychic as well as the physical body is reflected in their traditional attribute of 'Calming the Spirit'. Indeed Reishi is known in Chinese as the "Mushroom of Spiritual Potency" and there is much anecdotal evidence of its mood enhancing properties.

Mushroom nutrition thus offers significant benefits for many ME/CFIDS sufferers through its ability to address a number of their symptoms:

Low Energy
Weakened Resistance to Infection
Depressed Mental Condition

References:

1. Holmes GP, et al Chronic Fatigue Syndrome: a working case definition Ann Int Med 1988 108 387-389.
2. Klimas N, et al Immunological Abnormalities in Chronic Fatigue Syndrome J Clin Microbiol 1990 28 1403-10
3. Lanby AL et al Chronic Fatigue Clinical Condition Associated with Immune Activation Lancet 1991 338 (8769) 707-712.
4. Buchwald D et al A Chronic Illness Characterized by Fatigue, Neurological and Immunologic Disorder and Active HHV6. Ann Int Med 1992 116(2):102-113
5. Caligiuri M et al Phenotypic and Functional Deficiency of Natural Killer Cells in Chronic Fatigue Syndrome. J Immunol 1987 139 (10) 3306-13.

Mushroom Nutrition in



Clinical Cases using *Coriolus versicolor* from Christopher Hobbs

Christopher Hobbs is a 4th generation herbalist, acupuncturist and author practising in Williams, Oregon. His book "Medicinal Mushrooms - an Exploration of Traditional Healing and Culture" is the leading textbook of monographs on mycology. He lectures internationally on herbal medicine, is a member of the Scientific Advisory Board of Mycology Research Laboratories Ltd. and the founder of Natural Products Research.

Further details are available at: www.christopherhobbs.com

Patient A (Male, 46 years) Sjogrens Disease (not certain, but runs in the family).

Initial Symptoms

Night sweats, myalgia, arthralgia, fevers, extreme fatigue, anxiety and depression. Multiple sinus and lung infections. Trazadon, Xanax.

11/1/99

6 tablets *Coriolus versicolor*, 3 morning, 3 evening, together with 4 weeks of bowel cleansing, fresher foods, acupuncture.

15/5/99

No recent infections, sinuses clearer; joints not as painful; significantly more energy. No apparent side effects. Kidney pulse stronger, Spleen pulse a little slippery; tongue not as red.

7/9/99

Patient has been overworking and "stressing" to a large extent and has had a spell of low energy and myalgia, but is still significantly better than before starting *Coriolus* supplementation. Patient has also not had any severe acute symptoms of any kind, which were pronounced before taking *Coriolus* supplementation.

Patient B (Female, 60 years) Uncertain medical diagnosis, SLE diagnosis as child.

Initial symptoms

Significant hair loss, memory loss, does not feel well; chronic fatigue; acute "liver attacks" / migraine attacks.

15/3/99

6 tablets *Coriolus*, 3 morning and 3 evening, together with acupuncture and increased protein in diet.

15/5/99

Patient feels significantly better overall; no "liver attacks" for 1 month (unusual), more energy. Tolerability to supplementation is good. Tongue improved; less red/purple on sides (liver area).

7/9/99

Her energy is much better and she has had no further acute "liver attacks". Furthermore, in a major development, her hair has grown back. Tolerability to supplementation is good.

Patient C (Female)

Bowel cancer.

Her doctors suggested radiation therapy. Her partner researched medical mushrooms and started her on a powdered extract of *Trametes versicolor* in January 1999. Since then she has been feeling better and her primary tumour has been shrinking. However, a new tumour was discovered near her urethra prior to her being seen on September 7th, 1999

the Treatment of Fatigue

Patient D (Male, 52 years) Hepatitis C

Initial Symptoms

Fatigue, anxiety. Patient has declined interferon therapy.

17/3/99

6 tablets Coriolus-MRL, 3 morning, 3 evening, together with acupuncture and increased intake of fruit and vegetables.

15/5/99

Patient feels very well, but never was symptomatic. ALT declined from 87 to 26 over 2 months. Tolerability to supplementation is good. Liver pulse still a little weak; tongue red, scalloped.

7/9/99

Energy is good and TCM diagnostic signs have improved – Liver pulse and tongue colour are better. His viral load is down from 1 million to 500,000. Patient continues to take Coriolus 6 tablets per day.

Patient E (Male, 52 years) Bowel cancer, asymptotic

10/98

Eight tablets Coriolus-MRL 4 morning, 4 evening. Adjunct therapy included dietary modifications and 8-12oz fresh vegetable juice per day.

15/5/99

Patient reports rapid recovery from tumour removed in february 1999. Digestion better, feels well. Kidney pulse stronger, yellow coat towards rear of tongue. Brother recently died from bowel cancer, cousin also diagnosed.

7/9/99

This patient stopped taking Coriolus-MRL because he is working with another acupuncturist, a friend of the family. He continues to direct his own programme, but recently an MRI showed that the cancer had spread to the liver (2cm tumour on the lateral lobe).

Patient F (Female, 34 years) Genital Herpes

Initial symptoms

Frequent (every 2 weeks) painful outbreaks of herpes on the back and genital area. Also PMS.

Medical Treatment: Acyclovir.

24/3/99

3 tablets Coriolus-MRL in the morning and 3 in the evening. Adjunct treatment - calcium supplement.

15/5/99

Patient has had no outbreak for 4 weeks, generally feeling better; says mood is better, feeling more positive. No apparent side effects. Teethmarks are evident on the tongue (sign of digestive weakness in TCM).

7/9/99

Patient is having fewer outbreaks – only 1 in last 2 months. She continues on the Coriolus-MRL with 2 tablets morning and 2 evening. Her TCM diagnostic signs are also better.

Patient G (Female, 46 years) Breast cancer and liver cancer. Chemotherapy completed 1 year ago.

1/4/99

3 tablets Coriolus-MRL morning and 3 evening. Adjunct therapy - more vegetables and fruit in diet; acupuncture.

15/5/99

Patient reports improved energy, feeling of well being, tumours stable. Improved tongue and pulse.

7/9/99

Tumour still stable, patient was taking Coriolus-MRL until one month ago.

e Related Conditions

Patient H (Female, 49 years) Hepatitis C.

Initial symptoms
Major fatigue, depression, anxiety, frequents colds, ringing in the ears, irritable bowel, diarrhoea, insomnia. Patient had declined interferon therapy.

15/5/99
Patient reports that she had felt some improvement after 16 months of treatment from another acupuncturist, together with taking milk thistle, but that in the two months before starting Coriolus-MRL supplementation she had been getting worse with the symptoms returning. After 3 weeks of Coriolus-MRL supplementation she felt significantly better and is excited about the results.

	1995	1998	1999
ALT	98	186	140
AST	69	113	96

The 1999 clinical results for ALT and AST reflect two months of Coriolus supplementation:

TCM Observations
Tongue is purple, pale, scalloped, quivering (liver blood stagnation, digestive weakness).

7/9/99
Patient is still taking six tablets a day. She considers Coriolus-MRL to be effective and continues to ask for the product. Her liver enzymes are still up and down, but trending down. Fatigue and myalgia are the most prominent symptoms. She has fewer colds and flu and diarrhoea.

Christopher Hobbs' comments:

15/5/99
It is difficult to assess the role of Coriolus supplementation in every case because patients come in for acupuncture, emotional support and encouragement from myself and my staff. However, there do appear to have been some excellent results with patients B and H. Several patients ask for Coriolus specifically and feel it is a major contribution to their improved symptoms, as well as feeling of increased energy and well being.

7/9/99
I have few cancer patients and recommend Coriolus supplementation mainly for viral syndromes. Based on my experience I believe the product is worth trying on any patients with viral syndromes, including Hepatitis C, shingles, chronic fatigue syndrome (ME/CFIDS), fibromyalgia and AIDS (though I have few AIDS patients). I have seen the best results with chronic fatigue syndrome and Hepatitis C. The usual dosage is 6 tablets per day, reducing to 4 as a maintenance dose or for smaller patients. Higher supplementation schedules such as 8 to 10 tablets may be worth trying in stubborn cases.



FOCUS ON A MUSHROOM —*Coriolus versicolor*

The Immune enhancing properties of selected plants and mushrooms have been studied by Japanese researchers since the 1960's, with the majority of mycological research focusing on extracts derived from *Ganoderma lucidium* (Reishi) and *Lentinula edodes* (Shiitake).

In the late 1960's, a hot water extract of *Lentinula edodes* (Berk) Sing., completely inhibited the growth of sarcoma 180 implanted subcutaneously in ICR mice. From the extract, Professor Goro Chihara isolated and purified a polysaccharide, which showed marked antitumour activity, and named the polysaccharide Lentinan (1). However, Lentinan proved to be too toxic for long term clinical use (2).

The search for a mycological extract that had less toxicity and fewer side effects than Lentinan led researchers at Kureha Chemical Industry Company to investigate the effectiveness of the oral administration of *Polyporaceae* (one of the *Basidiomycetes*) in the treatment of stomach cancer. Kureha screened the fruit bodies of over 200 species of *Basidiomycetes* for their anti-tumor activity against various tumour cells, including sarcoma 180 and found several promising *Polyporaceae* strains (3). Among these strains *Coriolus versicolor* (Fr.) Quel (Kawaratake), was considered to be the most suitable for further fractionation due to its high anti-tumour activity and stability during serial cultivation (4).

Extracts of cultured mycelia of *Coriolus versicolor* demonstrated anti-tumour activity comparable to that of the fruitbody. In 1971, the active principle was precipitated from extracts of cultured hyphae of *Coriolus versicolor* (Fr.) Quel (CM-101 strain) with saturated ammonium sulfate, desalted and named PSK or Krestin (5). PSK has been reported to induce host-mediated anti-tumor activity (6).

In the mid-1970's, Kureha Chemical Industry Company licensed the marketing rights to Krestin to Sankyo Pharmaceutical Company. Under Sankyo's direction Krestin sales grew to \$600 million in Japan, where Krestin was and continues to be co-prescribed with chemotherapeutics as a non-specific immunomodulator for cancer patients.

In 1979, CEPA, the Spanish pharmaceutical firm, submitted Krestin as a pharmaceutical product licence in Spain. However, in 1983 Krestin was rejected by the Spanish health authorities due to the lack of a single identifiable active ingredient which could define the "mechanism of action". Within two years the United States FDA took the same decision for the same reason. As mushrooms, even in their extracted form, are complex polysaccharides, there is not a single active ingredient responsible for a mechanism of action.

Given that Krestin is pharmaceutical product in Japan and has been rejected by the Ministry of Health in Spain and by the FDA in the United States, Mycology Research Laboratories Ltd. has focused on developing the non-extracted form of *Coriolus versicolor*, known as **Coriolus-MRL**; a biomass power of *Coriolus versicolor* that includes both the mycelium and primordia (young fruitbody).

In 1999, while working with HIV patients at the Gateway Clinic in the United Kingdom, John Tindall (L.Ac.) confirmed that **Coriolus-MRL** was well tolerated in even severely immune-compromised patients and produced marked changes in CD4 levels and viral load. His results and those of Dr. Grazia Rotolo of Milan were presented in two posters at the 10th International Muscosal Immunology Congress in Amsterdam on June 29th, 1999. (Both posters are available for review at www.aneid.pt/mrl).

Uses of *Coriolus versicolor* in traditional medicine include increasing energy and strengthening the physique. As reported in the 2nd Edition of Mycology News **Coriolus-MRL** is used as part of a supplementation program by Chad Hawker, a leading Ironman triathlete with the added benefit of decreasing colds and viral infections during training.

Further information on *Coriolus versicolor* is available from MRL's website at www.aneid.pt/mrl or from:

Medicinal Mushrooms, An Exploration of Tradition, Healing & Culture by Christopher Hobbs, (L.Ac., A.H.G.) Interweave Press Inc. (this book is available for purchase from MRL distributors).

Notes:

1) **Medical Aspects of Lentinan Isolated From *Lentinus Edodes* (Berk) Sing** - Goro Chihara, Biotechnology Research Centre, Teikyo University, Nogawa 907, Miyamae-ku, Kawasaki 213, Japan. Chapter 27-Mushroom Biology and Mushroom Products-Proceedings of the Second International Conference-University Park, Pennsylvania June 9-12, 1996. Edited by D.J. Royce.

2) **Translation of Cancer Immunotherapy 1977** - Takeo Mori, Tadaaki Sakai, Ichiji Itoh, Tokyo Metropolitan Komagome Hospital, Published by Life Science August 5th, 1977.

3) **Diverse Biological Activity of PSK (Krestin), A Protein-Bound Polysaccharide from *Coriolus versicolor*** (Fr.) Quel-Hiroshi Sakagami and Minoru Takeda-First Department of Biochemistry, School of Medicine, Showa University, 1-5-8 Hatanodai, Shinagawa-ku, Tokyo 142 Japan, Page 237 Chapter 25-Mushroom Biology and Mushroom Products-Proceedings of the Second International Conference-University Park, Pennsylvania June 9-12, 1996, Edited by D.J. Royce.

4) Ibid Page 237

5) Ibid Page 237

6) Ibid Page 237

Coriolus versicolor in the Veterinary Field

Coriolus versicolor also offers significant benefits in the veterinary care of dogs and cats and UK vets are using Mycoplex Coriolus (500 mg tablets of Coriolus versicolor supplied by MRL Ltd) in the palliative care of dogs and cats with a variety of terminal cancers. Preliminary reports indicate that the pets demonstrate increased energy, appetite and well being with improvement in their quality of life and overall life expectancy. Mycoplex Coriolus Powder is also being used to great effect in sport horses suffering from post viral syndrome and has shown some promising results in reducing new sarcoid (skin tumour) growth.

For copies of Mycoplex Coriolus clinical work, please contact: Mrs. Chris Liggett at Animal Alternatives Ltd., PO Box 289, Richmond, Surrey. TW10 7XH

Tel: +44 (0)20 8940-3725 Fax: +44 (0)20 8332-2054



Where Can I Find More Information on Mushroom Nutrition?

1). Medicinal Mushrooms, An Exploration of Tradition, Healing & Culture by Christopher Hobbs, (L.Ac., A.H.G.) Interweave Press Inc. This book is available from MRL distributors.

2. A review of the First Annual Symposium on Mushroom Nutrition held on June 2nd, 1999 at Middlesex University
<http://www.phytochemistry.freeserve.co.uk>

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The Global Leader in Mushroom Nutrition Products

Mycology Research Laboratories Ltd. (MRL) has an extensive library of proprietary mushrooms strains (which ensures the correct specie and variety) to give you confidence in the identity of the mushrooms.

MRL's proprietary Japanese cultivation technology consistently produces uniform, contaminate-free, mushroom biomass powder; in accordance with the California organic food Act of 1990.

The biomass powder is then manufactured into 500-mg tablets to pharmaceutical GMP standards in the United Kingdom.

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Coriolus-MRL (Yun Zhi)

Cordyceps-MRL (Dong Chong Xiu Cao)

Reishi-MRL (Ling Zhi Cao)

Maitake-MRL (Grifola frondosa)

Triton-MRL 22% Ganoderma lucidum (Reishi)
33% Cordyceps sinensis
33% Lentinula edodes (Shitake)



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