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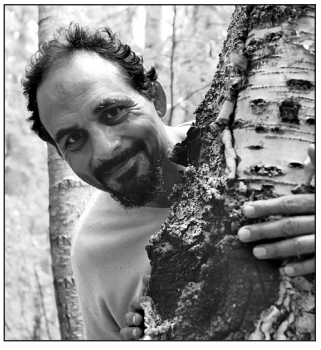
"Life in all its fullness is Mother Nature obeyed" **Weston A. Price, DDS**

The Healing Powers of Wild Chaga

An Interview with Cass Ingram, MD

by Nancy Faass, MSW, MPH, and PPNF Staff



Cass Ingram, MD, is the author of more than 20 books, including *The Cure is in the Cupboard, Natural Cures for Health Disasters, How to Eat Right and Live Longer,* and *Natural Cures for High Blood Pressure.* A popular media personality, he has appeared on over 5000 radio and TV interviews teaching the public and professionals about the power of natural medicine. The following article is based on an interview with Dr. Ingram and includes additional information drawn from his latest book, *The Cure is in the Forest,* which reviews the benefits of chaga.

Dr. Ingram, would you begin by explaining what chaga is?

Chaga (*Inonotus obliquus*) is a type of fungus that grows on birch trees in cold regions such as Siberia, northern Canada, Alaska, and some northern parts of the continental United States. It is of particular importance because it has been found to have a wide range of medicinal properties. Although these fungi are often referred to as "chaga mushrooms," botanists are not sure if they actually are a true mushroom. Culinary mushrooms are composed of soft plant fiber and are typically umbrella shaped, with gills on the underside. In contrast, chaga are more closely related to woody bracket fungi. In fact, chaga has recently been reclassified as a member of the Hymenochaetaceae family, which includes a number of other dark, woody botanicals that grow on bark and decaying trees. On average, chaga are 8 to 12 inches in diameter, with a rough, bark-like surface, and they may reach a weight of 30 to 35 pounds. Each chaga takes on a unique shape, some of them being almost humanoid in form.

The chaga have a symbiotic relationship with the birches on which they grow, and often help to heal the trees. If you insert chaga into a dying tree, frequently, that birch will recover. If a birch is damaged and splintered at the top, chaga will fill in and eventually heal the damaged bark. When the wind has caused a tree to lean and rub against another, chaga can repair the lesions in the bark of both trees.

As it grows, this growth feeds on the nutrients and compounds found in the birch tree. Looking at this another way, it predigests the birch's nutrients, concentrating them in a form more readily available to humans. In essence, the chaga serves as a vital chemical factory for substances of great value to our health.

How has chaga traditionally been used?

Several hundred years ago (perhaps several millennia), it was determined that chaga could be consumed as a food. The indigenous Siberians would grind it and put it in stews, soups, and daily beverages.

The Siberians found that, despite their harsh climate, the regular consumption of chaga prevented the onset of degenerative disease. They used it to boost physical stamina and attain long life. It has been observed by contemporary Russians that in the districts where chaga was regularly used, there was no cancer.

In contrast, the Inuit did not use chaga. Interestingly, the life span of the Inuit, who lived in a clime

similar to that of the Siberians, was only 40 to 50 years on average, whereas people in the Siberian tribes routinely lived to be 90 to 110. When we compare chaga to reishi medicinal mushrooms, we find that the reishi are beneficial, but they do not have the dramatic history of promoting longevity associated with chaga.

Chaga was also considered a significant medicine by ancient peoples in China, Korea, and Eastern Europe. I know from my travels, and from communication with colleagues, that chaga is used as a therapeutic agent in Siberia, Russia, and other European countries, as well as Korea, Japan, and parts of northern Canada. In Russia and other parts of Eastern Europe, it is considered a cancer cure. Among the Ojibwe of northern Canada, it is regarded as a cure for tumors. In Korea, it is used to fight stress and regulate energy. It has also been used in Europe to cure inflammatory skin conditions, including psoriasis and eczema, and it is well known in Eastern Europe for its powers against bronchitis and lung disease.

Chaga is supremely healthy for the skin. In a cream made with raw beeswax and spice oils, it has proven highly antiaging, as well as therapeutic for skin disorders. (Incidentally, I'm currently working on the development of a study on the use of chaga in the treatment of psoriasis.)

There is a great deal of interest in antioxidants today. Does chaga have antioxidant properties?

Chaga is known for its very high content of superoxide dismutase (SOD), an important enzyme that functions as a powerful antioxidant. SOD performs a vital antiaging function by neutralizing oxygen free radicals, preventing oxidative damage to cells and tissues. In studies, low tissue levels of SOD have been associated with both a decline in overall health and a reduction in life span.

SOD occurs naturally in different forms in all human tissues, but levels decline with age, particularly after age 30. The best way to increase SOD levels in the body is with food, since dietary supplements that contain the enzyme may be difficult to absorb. Good sources of SOD include chaga and other medicinal mushrooms, as well as peas, dark leafy greens, nutritional yeast, wheat grass, wheat germ, beef heart, and raw liver. Although nearly all medicinal mushrooms are rich in SOD, chaga has the highest concentration by far. It is 50 times higher in this potent enzyme than reishi. Chaga provides SOD in a form that can be utilized both topically and internally.

SOD has been studied in approximately 900 clinical trials, and the health benefits from its use have been clearly shown. For example, cancer patients undergoing radiation who were given SOD in a form that they could absorb had dramatically better survival, with less toxicity, less scarring, and better wound healing. I believe we don't always have to study everything by conducting research costing thousands (or millions) of dollars. We can look at the existing SOD studies and extrapolate chaga's usefulness from them. Chaga is one of the highest sources of SOD known, and, therefore, people are likely to gain some similar benefit from taking it. Plus, this is naturally produced SOD, the divinely synthesized kind, with a biological power unmatched in any other form.

You mentioned that chaga and birch have a symbiotic relationship. Do they also have synergistic properties when used medicinally?

A synergy was first reported by Russian researchers in the 1950s, who found that the properties of chaga were enhanced if it was encased in a casket of birch bark.

Chaga contains a certain amount of betulin and betulinic acid, which it metabolizes from the birch bark on which it grows. The white component of the birch bark contains an even greater amount of betulin—a waxy substance that protects the tree from water, insects, and so on. Both betulin and betulinic acid are very close in chemical structure to beneficial cholesterol and can serve as precursors to cholesterol in the human body, supporting cell membrane stabilization, healthy hormone production, and other vital functions.

To investigate the apparent synergy between these two botanicals, I have sent birch bark to the lab for the first testing on record of its antioxidant capacity by measuring ORAC (oxygen radical absorbance capacity) levels. When we evaluated the betulin of the birch bark, we found that the antioxidant capacity was extremely high. Chaga has an ORAC score of a couple of hundred per gram. When you combine chaga with the betulin-rich birch bark, it comes out

with an exceptional ORAC score—higher than 1,700 per gram.

The efficacy of these constituents was first studied at the University of Chicago, where they evaluated the bark of birch logs that were being used in the school's wood-burning furnace. Researchers stripped the bark off, extracted the betulinic acid, and evaluated it in animal studies. They found that this substance destroyed melanoma cells in rats. This led the drug companies to develop a semi-synthetic betulinic acid that has never really caught on in the marketplace.

There have been a number of other studies of betulinic acid, and it has been found to be a very effective antitumor agent. Betulin and betulinic acid are high-energy plant sterols (a subgroup of steroids) that act as efficient scavengers of free radicals and also slice apart tumor cells. Researchers have found that these compounds also induce apoptosis (programmed cell death) of cancerous cells.

Russian and Korean researchers have indicated that if chaga is ingested with a source of cholesterol, it becomes more bioavailable and therefore more effective. Similarly, birch bark consumed with a food high in cholesterol content, such as raw egg, has greater efficacy.

What are some of the other active ingredients in chaga?

One of the key sterols found in chaga is lanosterol. This is another precursor to human cholesterol, and thus helps the body rebuild cell membranes and supports the endocrine system. Lanosterol also possesses antiviral properties.

Another powerful component in chaga is the polysaccharide content, which supports immune function. Chaga contains high levels of 1,3 beta glucan, one of the most potent and healing polysaccharides known. Not only is beta glucan renowned for its role in activating the immune system, but it also reduces blood sugar in people who suffer abnormal blood sugar peaks.

Chaga actually contains a vast array of substances that are of value in human nutrition. To gain the greatest benefit, I recommend using wild chaga.

How would a consumer ascertain whether they are getting the wild product or a cultured product?

One can often tell by checking the label. Usually, it will say "standardized mycelial extract" or "mycelial growth." This indicates a cultured product. If the label states "with wild chaga," it may contain only about 10 percent wild chaga.

The age of the chaga can also have bearing on its quality. Early research by the Siberians found that 15- to 30-year-old chaga had higher levels of SOD and chromogenic complex (a phenolic compound with antioxidant properties) than younger ones.

Based on this insight, we suspected that the Canadian material would be the best quality with the highest antioxidant levels, because there are so many 200- to 300-year-old birch trees in Canada. In fact, the best chaga we're finding are in the drier climate of central northern Canada, from remote, unpopulated areas.

However, any chaga found in nature is going to provide SOD, biological sterols, and valuable enzymes. It will be high in B complex, germanium, and a number of other important nutrients.

Would you talk a little about preparing chaga?

Many products are derived from alcohol extracts, but historically, the Siberians used hot water to extract the chaga. I recommend a formula that consists of a water-processed chaga extract in combination with wild oregano oil. This formulation also includes some raw chaga, with the fibrous content (chitin) broken down without heat to make it more absorbable.

The Russians use hot water to make a concentrate that is very powerful. Our ORAC testing shows it to have a score of 1180 per gram, and to be very high in SOD.

In my contacts with some of the top people in Siberia, they have informed me that chaga should never be heated above 180 degrees F. In preparing tea, the chaga should not be boiled endlessly, and yet I have found that many people do boil it. At 150 to 180 degrees, you can get all the benefits without destroying the proteins, sterols, and enzymes. This is important because, in addition to SOD, chaga contains catalase and peroxidase, as well as RNAase and DNAase.

Even so, chaga can be prepared in tea form. I recommend using a tea made from ground whole chaga and birch bark. To gain the greatest benefit from chaga tea, heat water in a crock pot to about 150 degrees, add the chaga tea, and let it simmer for four or five days. (It will not spoil.) Another approach is to take a thermos of hot water (heated to about 180 degrees, not boiling), add the chaga, and steep it for two or three days. Let the water extract the active ingredients. You can drink the tea as it steeps, adding more hot water as you use the tea.

Chaga tea can be taken daily. In fact, to get the kind of results achieved by the indigenous Siberians, in terms of increased health and vitality, I believe you have to take it daily, as they did. You may also take it in capsule form, but it should always be with wild oregano, a natural antifungal agent, which helps stimulate the absorption of chaga's active ingredients. Or, use chaga/oregano oil sublingual drops.

Looking to the future, if the older wild chaga is sought out for its higher nutrient value, will harvesting it be sustainable?

That is a very important issue. In the past, no one realized that chaga could be harvested and still survive. Back then, we would carve the entire chaga out of the tree. Now, we understand that if you just cut the chaga even with the bark, it will grow back.

In Russia, the government has a systematic approach that appears to prevent overharvesting. They have huge, massive birch trees and a great deal of old-growth forest left, so the Siberian chaga—with the Russian government's involvement—should be okay.

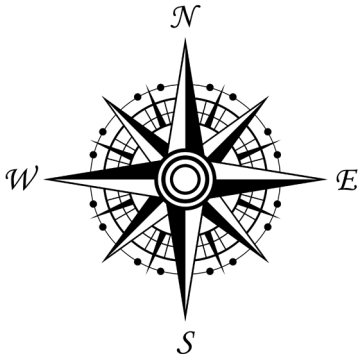
However, what about the United States, where wild goldenseal can no longer be found, and the indigenous echinacea and ginseng are essentially gone? In this country, I suspect that there are going to be problems. In upper Michigan, Wisconsin, and Minnesota, the chaga may be destroyed unless the trend can be reversed. Hopefully, we'll be able to preserve the chaga in the United States. 🕮

For more information about chaga, see www.chagaknowledge.com or visit healthnewsradio.com. To contact Dr. Ingram, call 1-800-295-3737. His books can be purchased on the Internet or at his website, www.KnowledgeHousePublishers.com. His latest book, *The Cure is in the Forest*, is also available from PPNF (see page 36).

Ed. note: For a review of key research, see page 10.

About the Writer

Nancy Faass is a writer and editor in San Francisco who has worked on more than 40 books, including *Boosting Immunity* (New World Library), *The Germ Survival Guide* (McGraw-Hill), and *Complementary Medicine in Clinical Practice* (Jones & Bartlett). She is director of The Writers' Group; for more information, see www.HealthWritersGroup.com.



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Research on Chaga

Compiled by Nancy Faass, MSW, MPH

One of the earliest reports of chaga appears in a Chinese herbal compiled more than 2,000 years ago. Although scientific research has been ongoing since the 1950s (initially in Russia and Poland), we currently have little data on the effects of chaga on human subjects. However, we do have more than 50 studies conducted either with human cell cultures or in animal research, primarily from China, Japan, and Korea. In North America, there have been five studies on chaga, three at the University of Texas and two at the University of Manitoba. Worldwide, much of the research has focused on three primary areas: improving immune response, moderating diabetes, and combating cancer.

IMMUNE RESPONSE

Research has found that chaga has the capacity to stimulate the immune response while simultaneously lowering inflammation. Typically, medications have one effect or the other, but not both. This ability to normalize function qualifies chaga as an "adaptogen," a substance that can either increase or decrease activity in the body as needed, to balance and restore appropriate functionality. Studies on immune function from Canada, Korea, and Japan have reported that chaga:

- Provides as many as seven antioxidant compounds[1]
- Stimulates chemical messengers such as interleukins and tumor necrosis factor alpha[2]
- Increases levels of infection-fighting cells such as macrophages[3]
- Reduces excessive levels of inflammation[4] and inhibits the inflammatory cascade[5]
- Lowers levels of antibodies associated with intense allergic reactions (IgE)[6]
- Prevents the breakdown of cell walls[7]
- Inhibits the Epstein-Barr virus (in test tube research)[8]
- Improves the immune profile in inflammatory colitis (in an animal study)[6]

DIABETES

In terms of diabetic function, a number of studies conducted at Chinese universities have reported major improvements in the health of diabetic mice, reflected in:

- Decreases of blood glucose levels in one week averaging 14 percent and at three weeks averaging 30 percent[9]
- Reductions in total cholesterol, triglycerides, and harmful LDL cholesterol[10]
- Increases in liver glycogen (an important energy source) and in beneficial HDL cholesterol, as well as improved insulin levels[11]
- Normalization of cholesterol levels[12]
- Higher levels of antioxidants, including superoxide dismutase (SOD) and glutathione[9]
- Improved growth and physiology[11]

CANCER

Cancer studies have evaluated chaga in a number of forms, including whole chaga, chaga components (referred to as fractions), and cultivated forms using the mycelia, as well as water extracts and alcohol extracts. Benefit has been reported with all forms of chaga.

Studies on cell cultures. Research has been conducted using lab cultures of human cancer cells, referred to as "cancer cell lines." These studies have included cultures of lung cancer, colon cancer, T-lymphoma/leukemia, liver cancer, and cervical cancer, as well as malignant tumors and other types of carcinomas. The following improvements in cell function have been reported among the approximately 30 lab studies published to date:

- Antioxidative and immune-stimulating effects[5]
- Anticancer effects via immune-stimulation[13]
- Inhibitory effects[14] and antiproliferative effects[15]
- Moderate effects against four different types of cultured cancer cells[16]

- Increased destruction of cancer cells[17] and obvious antitumor activities[18]
- Low toxicity, with no direct toxic effects against normal cells[19]

Animal studies. Findings from the 35 animal studies in the Medline database of the U.S. National Library of Medicine report increased immune activity, slower cancer progression, longer survival, and in some cases, cancer reversal, including:

- Potent antitumor activity[20]
- Cancer-inhibiting effects of five different compounds found in chaga[11]
- Increased production of infection-fighting antibodies (IgM)[13]
- Improved regulation of the immune response in mice with melanoma[2]
- Inhibition of tumor growth three times greater than normal[17]
- Fewer tumors, with two-thirds of mice surviving with no tumor incidence after two months[19]
- Survival rates four times higher than in the comparison group[19]
- Prolonged number of survival days in mice with leukemia[21]

The majority of these studies have been carried out over the past ten years, and more than 30 percent of the research has been published in the past two years. The research consistently reports improved function, without the toxicity often seen with medication. 🕮

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