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Can mushrooms help people with cancer?

People in Asia have long turned to mushrooms for their purported health benefits. One fungus in particular is becoming increasingly popular in North America for the same reasons. Known in Japan as the "king herb" and in China as "God's herb", reishi is praised by many for its alleged immune-enhancing properties.

According to the 1996 Encyclopedia of Alternative Medicine: A Complete Family Guide to Complementary Therapies, the shiny, kidney-shaped mushrooms with reddish-brown caps were rare and expensive until the 1980s, when, the book says, Japan's Shigeaki Mori developed a new means of cultivating them, making them more widely available and affordable. Today they grow in moist, temperate forest areas of Asia, Europe, South America, and North America, typically attaching themselves to oak and plum trees. The encyclopedia explains that reishi, which have the scientific name *Ganoderma lucidum*, also go by their Chinese name, ling zhi, which means "spiritual plant", since the Chinese believe the herb heals the spirit. Chinese herbalists also claim that reishi is one of the most powerful herbs when it comes to boosting strength, health, and longevity, on par with ginseng.

Among the substances contained in reishi, according to the encyclopedia, are polysaccharides, which allegedly help the body fight tumours and stimulate the immune system; triterpenes, which lower blood pressure and improve circulation; and natural antihistamines. In traditional Chinese medicine, the mushrooms are used to treat a range of conditions including heart disease, cancer, AIDS, bronchitis, hepatitis, mononucleosis, asthma, arthritis, nervous disorders, and chronic fatigue syndrome.

Advocates of reishi back up their claims by citing numerous studies that have shown the fungus's alleged beneficial effects. However, most of the scientific investigation to date consists of studies done in a lab setting or with animals, while few have been conducted on humans.

A review of scientific evidence published in the journal *Nutrition and Cancer* in 2005 noted that in vitro and in vivo studies support reishi's applications for cancer treatment and prevention. "The proposed anticancer activity of lingzhi has prompted its usage by cancer patients," the report stated. "It remains debatable as to whether lingzhi is a food supplement for health maintenance or actually a therapeutic 'drug' for medical [purposes]. Thus far there has been no report of human trials using lingzhi as a direct anticancer agent, despite some evidence showing the usage of lingzhi as a potential supplement to cancer patients."

In December 2005, researchers from the University of Hong Kong's department of pediatrics and adolescent medicine published an article in the *Journal of Alternative and Complementary Medicine* claiming that reishi has "immunomodulating effects". In other words, it normalizes the function of the immune system during toxic treatments like chemotherapy. The authors wrote that the substance, which was already being used by more than 30 percent of pediatric cancer patients in Hong Kong, could be used alongside mainstream cancer therapies.

And an article published in the April 15, 2007, issue of the *International Journal of Surgical Pathology* reported a single case of high-grade lymphoma going into regression, an extremely rare occurrence. The article, submitted by Queen Elizabeth Hospital in Kowloon, Hong Kong, stated that the patient's "successful" immune reaction could have been associated with the large doses of reishi he had taken.

The B.C. Cancer Agency's guide to unconventional therapies (www.bccancer.bc.ca/) includes an entry on

mushroom therapies that states that a literature search done in the medical resources Medline and CancerLit between 1966 and 1999 found no evidence that mushroom therapies are an effective cancer treatment in humans. "Preliminary results that show efficacy for some of the treatments in vitro...and in mouse models indicate that further research is necessary."

Renowned skeptic Robert Todd Carroll, who created the Skeptics' Dictionary Web site (www.skeptdic.com/), addresses the supposed benefits of mushroom therapy in a 2006 newsletter from the James Randi Educational Foundation, a Florida-based group that promotes critical thinking. Carroll attributes people's belief in the helpful effects of mushrooms to the placebo effect. "I wonder, too, if mushrooms didn't get some of their reputation for miraculous health benefits from magical thinking about their shapes, colors, textures, and the kinds of places they grow," Carroll wrote.

According to the Japan Reishi Association (www.japan-reishi.org/), the most potent substances come from the red reishi. Reishi can be taken in powder, pill, or extract form. Side effects, which are usually temporary, according to the B.C. Cancer Agency site, include sleepiness, rashes, bloating, thirstiness, and frequent urination.

IN OTHER MUSHROOM news, the B.C. Coroners Service recently issued a public warning that eating wild mushrooms can be deadly. The May 30 advisory followed the release of results from an investigation into the death of an 18-year-old Saanich resident last year. The teen died of amanitin poisoning after eating a species of poisonous mushroom she thought was safe to ingest at a party.

The warning explained that amanitin is a lethal toxin found in several common mushroom species that resemble small, edible mushrooms (brown or white). At first, the toxin attacks the liver and leads to nausea, vomiting, abdominal pain, and diarrhea. Symptoms typically subside, but the amanitin continues to cause liver damage, and by the time a person shows signs of liver failure, the effects of the toxin are "rarely reversible", the warning noted.

"Unless you are 100 per cent certain of identification, you should not eat wild mushrooms," the advisory stated.

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