Birch Fungi – Chaga - (Inonotus obliquus)

Features - commonly known as **chaga mushroom**, is a fungus in the family Hymenochaetaceae. It is parasitic on birch and other trees. The sterile conk is irregularly formed and has the appearance of burnt charcoal. It is not the fruiting body of the fungus, but a sclerotium or mass of mycelium, mostly black because of the presence of massive amounts of melanin. The fertile fruiting body can be found very rarely as a resupinate (crustose) fungus on or near the clinker, usually appearing after the host tree is dead.

North American First Nation Ethnobotany – Cree used it as sweet selling incense and as tinder, placed in pipe bowls to keep tobacco and other herbs burning, counter irritant in arthritis and rheumatism, Dene used in divination rituals.

Global Uses – Russians use for various cancers. In western Siberia to treat tuberculosis, liver disease, worms, and stomach problems. Noted blood purifier, tonic, and pain reliever.

Medicinal Potential – Chemical Constituents – more than 200 constituents including inotodiol; inonoblins A-C; phelligridins D, E, and G; trametenolic acid; 3beta-hydroxylanosta-8,24-dien-21-23-lactoneobliquol; lanosterol; botulin; various triterpenes; vanillic-, syringic-, ferulic, and p-hydroxybenzoic acids; and 21,24-cyclopentalanosta-3beta,21,25-triol-8-ene; and 3 beta,22,25-trihydroxy-lanosta-8-ene.

The wild fungus melanin is known as allomelanins. The mycelium contains more protein than the fruiting body. The black, charred parts contain up to 30% botulin, while the red-brown inside lanostanes.

Chaga inhibits oxidative stress, may have application in diabetes.

Antitumor activity has been found only in lengthy decoctions which is the traditional folk medicine preparation. Infusions have been found to be ineffective. Inotodiol was found to be most active ingredient, able to destroy 100% of Walker 256 carsinosarcoma cells and MCF-7 human adenocarcinoma mammary cells. Water extracts have been found effective against B16-F10 melanoma cells and sarcoma 180 tumor cells. Ethanol extracts are effective against human colon cancer cell lines.

Antioxidant effect of chaga appears to be the result of polyphenols. Some authors suggest it contains many times more antioxidant activity than common antioxidants such as Vitamin C and blueberry.

A recent study has found chaga to possess significant anti-inflammatory properties, and other studies have found the fungus to contain immune-stimulating polysaccharides.

Studies have found antiviral activity believed due to the content of botulin, hispolon, hispidin, luperol, and mycosterols. Found effective against influenza viruses and HIV.

The protective effect of chaga against radiation and in vivo antitumor effects has been reported. The authors of the study suggest immunotherapy as a fourth therapeutic modality in cancer treatment along with surgery, radiation, and chemotherapy.

Research Potential – Much of the research on chaga has been done in eastern Europe and Asia and may not be well known in western circles. Also, chaga has become somewhat of an "internet darling" so there may be a lot of misinformation out there about the effectiveness of treatments using chaga.

It would be worthwhile to undertake research that attempted to replicate studies, as well as to move into a more clinical phase of research.

Should demand become significant, research on sustainable harvest levels methods will be required.

Food and Drink Uses – Chaga is pleasant tasting and works well from a flavour and colour perspective as a standalone tea, or in a blend. It is likely that steeping chaga will not release its medicinal properties, but this may not preclude it as a tea ingredient based on flavour and colour.

Commercial Potential – There is currently demand for chaga as a natural medicine. As more comes on the market primarily from Canada and Russia, the price is pushing downward. There may be further commercial potential following reliable research if that research proves medicinal benefits, and results in products.

Potential Quantities in Northern Saskatchewan – Since this conk is not overly abundant, there may be concerns with over harvesting should significant demand be established.

Harvest Window – Any time of year, but winter months (Nov – April) will be best as there are no leaves and wet areas are frozen.

References: Wikipedia; The Fungal Pharmacy: The Complete Guide to Medicinal Mushrooms and Lichens of North America ; Nov 15 2011 - Robert Rogers