

Birch Fungi – False Tinder Polypore (Phellinus igniarius)



Features – Commonly found on willow, birch, and alder throughout the northern woods. The fruiting bodies are hoof-shaped and up to 20 cm wide. The fungus' presence is usually indicative of considerable internal decay of the tree.

North American First Nation Ethnobotany – Various Arctic tribes boiled the polypore and drank the decoction as a laxative or for stomachache. Native Americans made elaborate boxes to hold the ashes of the fungus. These boxes have been collected from many sites along the Alaskan coast. The boxes were made from exceptional materials of bone, ivory and wood. The fungus was burnt to an ash, which was mixed with tobacco and chewed. It was reported that this gave it a powerful kick. It is known now that the alkaline quality of the ash quickened the effects of the nicotine entering the bloodstream. This species is used rather than other polypores because the Native Americans recognized this as having unique properties and gave a kick that other species did not. The Yup'ik of Western Alaska called the fungus arak, and the mixture of tobacco and the ash iqmik – “thing to put in the mouth” It has been reported that 52% of first nations people used this fungus.

Global Uses – Usage appears to be primarily by indigenous groups in North America.

Medicinal Potential – Chemical Constituents: Three sesquiterpenes: 3S,9R,10S-3-hydroxy-11, 12-O-isopropyltrimene(1), 3S, 9R, 10S-3, 11, 12-trihydroxytrimene and 3S, 4S, 9R, 10S-11, 12, 14-trihydroxytrimene

Three steroids: 24R-ergosta-4, 6, 8, 22-tetraen-3-one, stigmasta-7, 22-diene-3b, 5a, 6a-triol, and 5a, 8a-epi dioxyergosta-6, 22-diene-3b-ol

Fourteen cyclo-dipeptide: cyclo (L-Pro-L-Val) cycle (L-Leu-D-Pro) cyclo (L-Leu-L-Pro), cyclo (Ile-Pro), cyclo (Gly-Leu), cyclo (Phe-Ser), cyclo (Ala-Pro), cyclo (Ala-Phe), cyclo (4-HyP-Phe), cyclo (L-Phe-D-Pro), cyclo (D-Phe-D-Pro), cyclo (6-HyP-Phe), cycle (Gln-Pro), and cycle (Asn-Leu);

Nine other compounds: N-acetyl-phenylalanine, adenosine, phenyldiethanol, o-hydroxy-phenylethanol, benzoic acid, p-methoxybenzoic acid, m-methoxybenzoic acid, hexadecanoic acid, and 3-pyridinecarboxylic acid.

-Naringenin, cyclophellitol, sakuranetin, aromadendrin, folerogrenin, eriodictyol, coumarin, scopoletin, phelligrindins, phelligrindimers, inniaris A-D, hispolon, 4-hydroxybenzaldehyde, protocatechualdehyde, syringic acid, protocatechuic acid, caffeic acid, isoerosterone, octadecyl ferulate.

THERAPEUTIC ACTIONS

Antioxidant, anti-tumor, anti-viral, hepato-protective, immune-stimulating, immune-modulating

MEDICINAL USES

- Prevented stroke in mice¹
- Hispolon is an active phenolic compound found in *Ignarius* and when isolated, had significant anti-tumor activity. A study² was done to look at its effect on lung cancer. Hispolon was found to induce cell apoptosis and G0/G1 cell cycle arrest.
- Hispolon has also been found to exert anticancer effects on Acute Myeloid Leukemia (AML).⁴
- The water extract is effective against influenza virus A and B, including H1N1, H2N3, and the Avian flu. The extract interferes with events in the virus replication cycle including viral attachment to the target cell.³
- Ethanol extracts inhibited the proliferation of human hepatocarcinoma cell lines as well as rat heart vascular endothelial cells. When the extract was given in combination with Chemotherapy there was a synergistic effect in the inhibition of the proliferation of hepatocarcinoma.⁶ This study as well as others⁵ suggest hepatoprotective qualities in the ethanol extract.
- The biologically active compounds that modulate the immune system have been found to have therapeutic value for slowing multiple sclerosis progression in mice.⁷ After three weeks of being injected with the extract every other day, demyelination and immune cell infiltrations in the spinal cord were examined and there was a significant decrease in the daily incidence rate and clinical score of autoimmune encephalomyelitis.
- Used as an emmenagogue, invigorates blood circulation⁹
- Fruiting body inhibits neuraminidase from H3N2, H1N1, and H5N1 influenza viruses¹¹ (neuraminidase is an important glycoprotein in influenza viruses that cleaves sialic acid from the infected cell surface and releases virus progeny allowing it to then infect other cells – and so neuraminidase inhibitors are well sought after in medicine)

Research Potential – Potential exists to follow up research already done, similar to research opportunities with *Fomes fomentarius* and *Inonotus obliquus*.

Food and Drink Uses – None known.

Commercial Potential - There could be significant growth in demand based on medicinal products that could be created based on medical and cosmetic research and clinical trials.

Potential Quantities in Northern Saskatchewan – Supply of up to 1,000 kg (dried) is possible at this point. Given development time, this supply could be increased exponentially.

Harvest Window – Supply of up to 1,000 kg (dried) is possible at this point. Given development time, this supply could be increased exponentially.

References: <https://reishiandrosesbotanicals.wordpress.com/2015/05/20/phellinus-igniarius/>; The Fungal Pharmacy: The Complete Guide to Medicinal Mushrooms and Lichens of North America ; Nov 15 2011 - Robert Rogers