

Medicinal Mushrooms of Southwest Siberia

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As of today, there are more than 1500 known species of macromycetes that are grown in various plant cooperatives in southwest Siberia. Approximately 250 species of macromycetes are edible. The list of poisonous mushrooms contains approximately 50 species. Many edible and poisonous mushrooms have become the subject of research for the purpose of investigating their bioactive substances. According to corresponding literature, in the southern part of West Siberia there are more than 150 species of Basidiomycetes with medicinal properties. Of these, the most well known in Siberian folk medicine are *Amanita muscaria* (L.:Fr.) Hook., *Boletus edulis* Bull., *Inonotus obliquus* (Pers.:Fr.) Pilát, and *Fomes officinalis* (Vill.:Fr.) Bond. et Singer.

Medicinal and stimulating effects of *Inonotus obliquus* (Chaga) have been known from time immemorial. It is scientifically proven that the chaga mushroom increases the immune system of ill people and activates the circulation of brain tissue elements, thus increasing bioelectric activity of the brain's cortex. The Siberian population actively uses Chaga's infusion. In practical medicine, Befungin was the first manufactured Chaga product, which has been confirmed by Russian scientists. The chemical composition and biosynthetic activity of this mushroom were researched by the many scientists. There is confirmed information of the use of Befungin to cure psoriasis. Pharmacies in the city of Novosibirsk offer a broad selection of manufactured products that contain Chaga: dried

chaga, chaga infusions, chaga syrup, tea, and lotions-balsams to cure arterial and joint diseases as well as in the healing of wounds.

The Center of Fungi-therapy, which was created in St. Petersburg's suburbs, actively uses chaga, along with shiitake mushroom (*Lentinus edodes* (Berk.) Singer), in cancer therapy. Lately, there has been a lot of information about medicinal products made from *Cordyceps militaris* (L.) Link. In natural environments of southwest Siberia, there have been only isolated discoveries of this particular type in the mountainous Altai and Kemerovskaya province.

To the class of rare medicinal mushrooms in Siberia, the following species should be added: *Sarcosoma globosum* (Schmidel:Fr.) Rehm, *Sparassis crispa* (Wulf.:Fr.) Fr., *Ganoderma lucidum* (W.Curt.:Fr.) P. Karst., *Dictyophora duplicata* (Bosc) E. Fisch., *Phallus impudicus* L., *Grifola frondosa* (Dicks.:Fr.) S.F. Gray, *Hericium coralloides* (Scop.:Fr.) Pers., *Pleurotus calyptratus* (Lindbl.) Sacc., *Polyporus umbellatus* (Pers.:Fr.) Fr., *Lyophyllum decastes* (Fr.:Fr.) Singer, *Oudemansiella mucida* (Schrader:Fr.) Höhn., and *Suillus bovinus* (Pers.:Fr.) Kuntze. In this region, it is very popular to use as food products such edible types as *Kuehneromyces mutabilis* (Schaeff.:Fr.) Singer et A.H. Sm., *Armillaria mellea* (Vahl:Fr.) P. Kumm., *Flammulina velutipes* (W.Curt.:Fr.) Singer, *Leccinum aurantiacum* (Bull.) S.F. Gray, *L. scabrum* (Bull.) S.F. Gray, *L. versipelle* (Fr. et Hök.) Snell, *Suillus granulatus* (L.:Fr.) Snell, *S. grevillei* (Klotzsch:Fr.) Singer, *S. luteus* (L.:Fr.) S.F. Gray, *Cantharellus cibarius* Fr.:

Fr., *Pleurotus ostreatus* (Jacq.:Fr.) P. Kumm., *P. pulmonarius* (Fr.:Fr) Quél., *Lactarius deliciosus* (L.:Fr.) S.F. Gray, *L. torminosus* (Schaeff.:Fr.) S.F. Gray, and representatives of genus *Russula*, the majority of which produce a good harvest in favorable (salubrious) weather conditions in birch-pine, deciduous, and taiga woods in valleys and mountainous areas. Unfortunately, people still use *Paxillus involutus* (Batsch:Fr.) Fr. for food, even though it has been acknowledged as a poisonous type.

Among the common forest's species there are also *Laccaria laccata* (Scop.:Fr.) Fr., *Lepista nebularis* (Fr.) Harmaja, *L. nuda* (Bull.:Fr.) Cooke, *Lycoperdon perlatum* Pers.:Pers, *L. pyriforme* Schaeff.:Pers., *Fomes fomentarius* (L.:Fr.) J.J. Kickx, *Fomitopsis pinicola*

(Sw.:Fr.) P. Karst., *Piptoporus betulinus* (Bull.:Fr.) P. Karst., *Ganoderma applanatum* (Pers.) Pat., *Laetiporus sulphureus* (Bull.:Fr.) Murrill, *Schizophyllum commune* Fr.:Fr., and several others. In the valleys and meadows of Novosibirskaya province, the Altai Region, and Mountainous Altai, *Agaricus arvensis* Schaeff.:Fr., *Calvatia lilacina* (Berk. et Mont.) Lloyd, *Handkea excipuliformis* (Scop.) Kreizel, *H. utriformis* (Bull.:Pers.) Pers., as well as the less common *Langermannia gigantea* (Batsch.:Pers.) Rostk. and *Pleurotus eryngii* (DC.:Fr.) Quél. are commonly found. In various habitats, it is possible to find *Coprinus atramentarius* (Bull.:Fr.) Fr. and *C. comatus* (O.F. Müll.:Fr.) S.F. Gray, but their harvest is rarely abundant.