

FUNGI IN FOLK MEDICINE

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An account is provided of fungi which have proved to be medicinally important both in India and in western countries, together with notes of traditional preparation of these folk medicines.

Agaricoid fungi used in the past have included the field mushroom (*Agaricus campestris* Linn.: Fr.), of which a dosage of 3-6 g 2-3 times per day (Gogate, 1972) was said to provide a nutritious tonic, giving energy, and used against tuberculosis, anti-inflammation and sinusitis. The fly agaric (*Amanita muscaria* (Linn.: Fr.) Hooker) has long been considered to be the ancient 'Soma' (Ainsworth, 1976; Sawant, 1974; Wasson, 1968). The sclerotoid fungus, called God's bread or little man's bread (*Mylitta lepidescens* Horan) was used by the Vaidues in southern India (Kerala State) for treatment of renal ailments and is considered to be a diuretic (Desai, 1927; Dymock et al, 1890; Shah, 1991). In Indonesia, the giant puffball (*Langermannia gigantea* (Pers.) Rostk.) has been listed to possess medicinal properties, with the following applications: (a) the flesh is mixed with vinegar and applied to external swellings; (b) the flesh may be used as a styptic; (c) the entire fruitbody can be mixed with oil for use as an embrocation; (d) as a constituent in ointment it is used against haemorrhoids and as a remedy for convulsions.

Several plant parasitic fungi have been used for medicinal purposes, most notably ergot of rye (*Claviceps purpurea* (Fr.) Tul.) and ergot of bajra (*C. microcephala* (Wallr.) Tul.). Earlier literature, however, has indicated the use of other phytoparasites, such as the grain smut of Sorghum (*Sphacelotheca sorghii* (Link) Clinton), grain smut of wheat (*Ustilago tritici* (Pers.) Rostrup), false smut of rice (*Ustilaginoidea virens* (Cooke) Takahashi) and smut of maize (*Ustilago maydis* (DC) Corda). *Cordyceps purpurea*, *U. tritici* and *U. maydis* were traditionally used for many of the disorders encountered during pregnancy, for uterine and minor arterial contractions, and even against syphilis (Desai, 1927).

The yeasts, known as magic roti (*Torula*

and *Saccharomyces* species) were used against fever, blood disorders, dysentery, diarrhoea, and for wound dressings (Desai, 1927). The following formulation was prescribed: mix the roti with wheat flour and water to prepare a thick paste after boiling, apply to wound or infected area and leave overnight.

A prophylactic treatment for wound infection in Europe was mould therapy (Wainwright, 1988, 1989a, 1989b, 1990; Wainwright et al, 1992), using mouldy bread for septic fingers by applying a damp, old cloth (or even material from mouldy boots). A Gypsy remedy was to use mouldy wheat straw for the treatment of boils. Recent evidence has suggested that the active ingredient is patulin (Wainwright et al, 1992), and that other moulds may provide alternatives to penicillin.

Some wood rotting fungi have also been used medicinally since ancient times dating back to the Greeks and Romans (Ainsworth, 1976), see Table 1. The following are regarded as among the more important preparations:

(i) **Larch quinine fungus** (*Laricifomes officinalis* (Vaill.: Fr.) Kotl. & Pouzar). The active ingredient is agaricin, which is an amorphous, bitter powder, of which 1-2 g are used as an astringent to check night sweating, diarrhoea, and diminishing bronchial secretions, Desai (1927) suggested increasing the dosage from five to fifteen 'gunja'. Khory (1887) listed its use against haemorrhoids, water motions, vomiting, excessive sweating, spasmodic coughing, checking bleeding from bites, and suppressing lactation.

(ii) **Chaga (Tchaga) fungus** (*Inonotus obliquus* (Pers.: Fr.) Pilat). The active ingredient is now sold under the trade name of 'Befungin', as a brown liquid and has been approved within Russian medical research. The fungal extract is prepared by cutting fresh, sterilised conks into slices which are then gently dried at room temperature. Next, they are washed with cold water and boiled for four hours, after which the slices are softened, ground up, and left in boiled water (v/v 5:1) for 48 h.

The mixture is filtered and the brown liquid is administered over four days, in doses of 275 ml per day about 30 min before eating. In total some 7 kg are required to complete a course for chronic gastritis and ulcers, the early growth of tumours (pulmonary or gastric).

(iii) **Snuff fungus** (*Daedaleopsis flavida* (Lév.) Roy & Mitra). This has been recently brought to the notice of the authors by a traditional vaidue (Bappa Sule) from Ambaranath, Bombay. He indicated that it was used extensively by his forefathers for the treatment of jaundice. Some 5 g of the fruitbody are crushed to a powder, and sniffing the powder throughout one day dramatically reduces both the bilirubin and biliverdin content thereby curing jaundice after a three day treatment. In chronic cases a second three day course may be applied following a two-day gap.

(iv) **Umbarache Kan** — Fruitbodies grow on *Ficus religiosa* Linn. This was also brought to the notice of the authors. The conks are threaded and worn around the lower limbs continuously for eight days as a cure for kidney disorders.

(v) **Phansomba** is a medicinal fungus, known to most western Indian ayurvedic doctors. As the name suggests the fungus produces mango-shaped fruitbodies on the phanas tree (*Artocarpus heterophyllus* Roxb.). Dymock et al (1890) suggested that the medicinal use was introduced into India by the Portuguese in Goa. They adopted the fungus for the tinder fungus (*Fomes fomentarius* (Linn.: Fr.) Fr.) which was not available in the country. The fruitbody is ground with water into a paste and applied to the gums in cases of excessive salivation and may be administered internally for diarrhoea and dysentery. Desai (1927) has also listed it for the healing of wounds. Recently, Vaidya (1991) and Vaidya & Bhor (1991) have reviewed Phansomba, suggesting that as many as twelve species of the poroid genus *Phellinus* Quél. have been used by the Ayurvedic doctors.

In conclusion, it becomes clear that fungi play a major role in Ayurvedic Dravyaguna and pharmacognosy, and their medicinal importance should not be ignored.

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TABLE 1. MEDICINALLY IMPORTANT WOOD-ROTTING FUNGI

No.	Fungus	Common Name	Medicinal Properties	References
1.	<i>Larcifomes officinalis</i>	Larch — Quinine Fungus	Agaricin — Agaricol and Agaric acid as active principle. Liver complaints, asthma, jaundice, dysentery, stomach pain, pain in joints, cathartic, lactifuge, diuretic, expectorants, check bleeding from bites.	Gerard, 1597; Khory, 1887; Dymock, et al 1890; Youngken, 1948; Nadkarni, 1954; Wren, 1956; Singh, 1974.
2.	<i>Inonotus obliquus</i>	Chaga or Tchaga (Trade name: Befungin)	Anticarcinogenic properties. Chronic gastritis, ulcers.	Rolf & Rolf, 1925.
3.	<i>Fomes fomentarius</i>	Tinder Fungus	Cauterization of burned tissues.	Dymock, et al, 1890.
4.	<i>Phellinus igniarius</i>	Bulgar jangali (Kashmiri); Garignod (Hindi); Kiarin (Punjabi)	Internally as a bitter tonic and laxative; externally as a styptic.	Nadkarni, 1954; Chopra, et al, 1956.
5.	<i>Amyloporus campbellii</i> (= <i>Polyporus anthelminticus</i>)	Bamboo Agaric (Burma)	Anthelmintic (i.e. used against worms)	Chopra, et al, 1956.
6.	<i>Meripilus giganteus</i>	Adulteration of Phansomba	Applied in gums to prevent excessive salivation, good styptic.	Khory, 1887.
7.	<i>Lentinula edodes</i>	Shiitake Mushroom (Japan)	Lowers cholesterol content in blood.	Pegler, 1983.
8.	<i>Rhodotus palmatus</i>	Adulteration of Phansomba	Edible fungus.	Khory, 1887.
9.	<i>Polyporus spp.</i> on Birch	Snuff Fungus	Narcotic snuff.	Berkeley, 1857.
10.	<i>Pycnoporus sanguineus</i>	Blood Red Mushroom	Dysentery, venereal diseases, embrocation for leprous	Krauseman, 1953.