

Amanita muscaria: Ecology, Chemistry, Myths

Subjects: Mycology

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Amanita muscaria is the most emblematic mushroom in the popular representation. It is an ectomycorrhizal fungus endemic to the cold ecosystems of the northern hemisphere. The basidiocarp contains isoxazoles compounds that have specific actions on the central nervous system, including hallucinations. For this reason, it is considered an important entheogenic mushroom in different cultures whose remnants are still visible in some modern-day European traditions. In Siberian civilizations, it has been consumed for religious and recreational purposes for millennia, as it was the only inebriant in this region.

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Thanks to its peculiar red cap with white spots, *Amanita muscaria* (L.) Lam. is the most iconic mushroom in modern-day popular culture. In many languages, its vernacular names are *fly agaric* and *fly amanita*. Indeed, steeped in a bowl of milk, it was used to catch flies in houses for centuries in Europe due to its ability to attract and intoxicate flies. Although considered poisonous when ingested fresh, this mushroom has been consumed as edible in many different places, such as Italy and Mexico ^[1]. Many traditional recipes involving boiling the mushroom—the water containing most of the water-soluble toxic compounds is then discarded—are available. In Japan, the mushroom is dried, soaked in brine for 12 weeks, and rinsed in successive washings before being eaten ^[2]. However, the fascination emanating from this mushroom is not recent or limited to culinary purposes; its consumption by humans dates back thousands of years, shaping religious and spiritual beliefs, notably in Neolithic Siberian societies. The symbolical appeal exerted by the fly agaric on our collective imagination is found in numerous representations, myths, and legends. Some examples are Lewis Carroll's *Alice's Adventures in Wonderland*, the *Super Mario* videogames series, and German artist Carsten Höller's installations. This chapter introduces various aspects of *A. muscaria*, dealing with its ecology, its chemical composition and pharmaceutical characteristics, and features of ethnomycology.

References

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