

Amanitaceae - first white-spored group

Characters that define *Amanita*

Habit pluteoid; lamellae free; spores white often amyloid; universal veil and often partial veil present; lamella trama divergent and made up of inflated cells.

Comparison to *Lepiota* and *Lepiota*-like taxa

volva present vs. volva absent

gill trama divergent vs. gill trama regular or trabecular

spores often amyloid (blue in Meltzers) vs. usually dextrinoid (reddish brown in Meltzers).

Amanita – a big genus, world wide; most species ectomycorrhiza-forming. Characters used to identify species: color, stipe shape, veil remnants, staining, smell, pileus margin, spores amyloid or not,

Some common autumn species around here:

subgenus Amanita sect Amanita - abrupt bulb with strongly reduced volva

Amanita muscaria (Fly agaric) – with a strikingly red pileus, set with red cottony veil remnants; volva breaking up in girdles of cottony material on stipe base; annulus hanging, skirt-like; contains ibotenic acid and muscarin

Amanita gemmata (and *A. patherina*) – pale yellow pileus; pileus margin striate; veil whitish-greyish in warts on pileus; annulus present

Sect Vaginata (*Amanitopsis*) - no partial veil, tall slender-stiped species,

Amanita vaginata (Grisette) – grey pileus with sulcate margin;

A. pachycolea dark brown pileus, thick volva

Subgenus Lepidella spores amyloid, volva often fragile or strongly reduced, - odor often pungent and disagreeable.

Amanita phalloides (Death cap) – with a radial greenish-brownish-striped pileus, but variable in colour, often without veil remnants on the pileus; with hanging skirt-like annulus; fruitbodies from small to big; ectomycorrhizal with oak, imported from Europe; contains amatoxins

Amanita ochreatea - our pure white species that is similar to *A. phalloides* in general structure and toxicity

Amanita calypttrata, - the coccoli - single large patch of velum on cap, yellow-orange pileus (also *. calyptratoides* - pale pinish gray pileus, and *A. velosa*- a spring species, especially in Sierra)

Amanita franchetii (also known as *A. aspera*) – brown pileus; yellow veil and of the same consistence as that of *A. muscaria*

A. novinupta - blushing red, keys out to *A. rubescens* in Arora

A. magniverrucata - huge white scales on white pileus, smelly bleachy odor

Limacella – a rather small genus; universal veil glutinous, disappearing with age; Pileus glutinous, no volva, gill trama divergent. the species look a bit like *Lepiota*-species, but lack scales; smell often farinaceous to rancid. Probably saprotrophic.

Amatoxins – present in *A. phalloides*, *A. verna*, *A. virosa*, *A. bisporigera*, *A. hygroskopica*, *A. ocreata*, *A. suballiacea*, and *A. tenuifolia* (and in members of

Lepiota section *Ovisporae*, *Conocybe* subgenus *Pholiotina*, and *Galerina* section *Naucoriopsis*). Inhibits RNA-polymerase B in all Eukaryotes (with the exception of the amatoxin accumulating mushroom species, and some *Drosophila* species). In mammals the toxic effect is seen primarily in the liver and kidneys. 5-7 mg amatoxin is lethal for a human, that means less than 50 grams of a fresh fruitbody of *A. phalloides* (c. 100 grams of a *Lepiota* species).

A simple test for the presence of amatoxins is the Wieland-test (aka **Meixner**-test or newspaper test). Draw with a pencil (not a pen) two circles on the unprinted part of a newspaper (containing wood fibers). Squeeze a drop of juice from the mushroom into one of the two circles, and allow to dry. Do not expose to sunlight. When dry, place a small drop of concentrated hydro-chloric acid (25 %) on the spot of the juice and a drop in the control circle. A positive reaction occurs when there is more than 0.02 mg amatoxin/ml, and may take only a few minutes, but wait for one hour to be sure. A positive reaction is indicated by a pale blue green colour, which might be very faint. False positives occur, as this test tests for the presence of indoles; terpenes may cause the same coloration.

Ibotenic acid, muscimol, muscazone – present in *A. muscaria* and allies, *A. pantherina*, *A. gemmata* (probably), *A. cothurnata*. Effects the central nervous system, and causes a state similar to alcohol intoxication and ends in a deep sleep.

Muscarin – present in some *Inocybe* species, some *Clitocybe* species; in very small quantities in *A. muscaria*. Causes PSL-syndrom: perspiration, salivation, lacrimation. It resembles and replaces acetylcholine – a neurotransmitter; atropin is used as an anti-drug.

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