

Mushroom Toxicosis in Dogs

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Table 1. Toxicologic Classification of Toxic Mushrooms^{1,3-5}

Toxin Type	Species	Layman's Name	Mechanism of Action / Method of Toxicity
Hepatotoxic cyclopeptides	<ul style="list-style-type: none"> ■ <i>Amanita</i> spp (<i>A phalloides</i>, <i>A ocreata</i>) ■ <i>Galerina</i> spp ■ <i>Lepiota</i> spp 	<ul style="list-style-type: none"> ■ Death cap ■ Death angel ■ Destroying angel ■ Deadly agaric 	Amanitins inhibit nuclear RNA polymerase II, resulting in decreased protein synthesis and secondary cell death. Cells with rapid replication are most affected. ⁴
Hydrazines (Monomethyl-hydrazines)	<ul style="list-style-type: none"> ■ <i>Gyromitra</i> spp 	<ul style="list-style-type: none"> ■ False morels 	Hydrolyzes gyromitrin to <i>N</i> -methyl- <i>N</i> -formylhydrazine, which is further metabolized to monomethylhydrazine. Toxicant results in antagonism of pyridoxine (vitamin B ₆), a cofactor required for the synthesis of gamma-aminobutyric acid (GABA). ^{4,5}
Muscarinic agents	<ul style="list-style-type: none"> ■ <i>Inocybe</i> spp ■ <i>Clitocybe</i> spp 		Works at the peripheral nervous system to compete with acetylcholine at the receptor binding sites, resulting in muscarinic cholinergic signs. ⁴
Isoxazoles	<ul style="list-style-type: none"> ■ <i>Amanita pantherina</i> ■ <i>Amanita muscaria</i> 		Muscimol and ibotenic acid are GABA agonists and result in psychotropic symptoms. ³⁻⁵
Psilocin & psilocybin	<ul style="list-style-type: none"> ■ <i>Conocybe</i> spp ■ <i>Gymnopilus</i> spp ■ <i>Psilocybe</i> spp ■ <i>Panaeolus</i> spp 	<ul style="list-style-type: none"> ■ Magic mushrooms ■ Hallucinogenic mushrooms 	Psilocybin is dephosphorylated to psilocin, which crosses the blood-brain barrier, acting as an LSD-like compound. ⁵
GI irritants	<ul style="list-style-type: none"> ■ <i>Agaricus</i> spp ■ <i>Boletus</i> spp ■ <i>Chlorophyllum</i> spp ■ <i>Entoloma</i> spp 		Unknown toxic principle. Many toxins in this category are inactivated by cooking. ⁵
Orellanine	<ul style="list-style-type: none"> ■ <i>Cortinarius</i> spp 		Unknown toxic principle that results in acute kidney injury.
Coprine	<ul style="list-style-type: none"> ■ <i>Coprinopsis atramentaria</i> 		Inhibits aldehyde dehydrogenase, thus inhibiting the conversion of ethanol to acetate. If ethanol is not concurrently ingested, toxicosis does not occur. Toxicosis from this mushroom is unlikely to occur in veterinary medicine.