

Thirty-Plus Years of Mushroom Poisoning: Summary of the Approximately 2,000 Reports in the NAMA Case Registry

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IN THE EARLY years of NAMA, toxicology was one of the concerns of the Mycophagy Committee. The existence of toxicology committees in the Puget Sound and Colorado clubs stimulated the NAMA officers to separate the good and bad aspects of ingesting mushrooms. In 1973 they established a standing Toxicology Committee, initially chaired by Dr. Duane H. (Sam) Mitchel, a Denver M.D. who founded the Colorado Mycological Society. In the early 1970s Sam worked with Dr. Barry Rumack, then director of the Rocky Mountain Poison Center (RMPC), to establish a protocol for handling information on mushroom poisonings resulting in the center, becoming nationally recognized for handling mushroom poisonings. In 1982, encouraged by Dr. Orson Miller and acting on a motion by Kit Scates, the NAMA trustees then created the Mushroom Poisoning Case Registry. Dr. Kenneth Cochran laid the groundwork for maintaining the Registry at the University of Michigan. Dr. Cochran continues to maintain the gateway through which individuals can report mushroom poisonings using the NAMA Web site (www.namyco.org). The reporting is an entirely volunteer effort, and at the end of each year members of the NAMA toxicology committee assemble all of the reports for the previous year as well as any other earlier cases that can still be documented. In addition, members of the toxicology committee work with Poison Centers to directly gather mushroom poisoning reports. Marilyn Shaw (Colorado, Montana, Idaho, Hawaii and Las Vegas, Nevada), Dr. Bill Freedman (California), Jan Lindgren (Washington and Oregon), Judy Roger (Washington and Oregon), Dr. Ken Cochran (Michigan and the upper Midwest), Hanna Tschekunow (Florida and Eastern U.S., now Washington), Dr. Denis Benjamin (Washing-

ton, now Texas) and many others have worked hard to track down and record details of mushroom poisoning cases.

The first annual NAMA report of mushroom poisoning cases was published by Dr. Cochran in *Mushroom: The Journal* in 1985 (Cochran, 1985). All subsequent reports are in *McIlwainea* (Beug 2006; Cochran, 1986, 1988, 1999, 2000; Lampe, 1989; and Trestrail 1991, 1992, 1994, 1995, 1996, 1997, 1998). In some of Dr. Trestrail's reports (Trestrail 1992, 1994, 1995, 1996) he compares numbers of mushroom toxic exposures reported to NAMA to reports to the Poison Control Centers compiled through the Toxic Exposure Surveillance System of the American Association of Poison Control Centers. From this data we can infer that mushrooms account for about 0.4 to 0.5% of total toxic exposures. NAMA is receiving reports totaling about 1% of mushroom poisoning cases that are reported to Poison Control Centers each year. While about 90% of mushrooms in the Toxic Exposure Surveillance System are unidentified, NAMA involvement drops the percentage of unidentified mushrooms into the range of 10–30%. Also, since approximately 80% of the reports to PCCs involve asymptomatic events, we conclude that NAMA reports get filed for about 10% of the symptomatic poisoning cases (and probably well over 50% of the cases involving a fatality).

The NAMA database that is maintained of all of the poisoning case reports that have been received by the toxicology committee is not readily accessible when questions arise. This paper summarizes all reports in the database where the mushroom could be reasonably well identified. We cover all material through December 2005. Unlike in the annual reports, we will not delve into treatments or why the person might

have consumed the mushroom (e.g. for food, for recreation, mistaken identification, etc.). The only age determination we make is for adults (and here we treat teenagers as adults) versus children. However, bear in mind that symptoms can be most severe in individuals whose health is previously compromised (due to age, alcohol or chronic disease) and in children whose digestive and immune systems are not yet fully developed. There are unusual cases where the death is not directly due to mushroom toxins. These include a previously severely ill elderly man who ate several successive huge meals of a *Gyromitra* species, but the symptoms related to his death did not match any known mushroom symptoms. A quadriplegic consumed purchased *Psilocybe cubensis* (of uncertain quality), went into anaphylactic shock, and died. One woman of a group of five ate what was probably *Laetiporus sulphureus*, suffered severe GI symptoms, dermatitis, and died in 19 hours while no one else in the group was even sick. After becoming unconscious from a large meal of *Amanita muscaria*, a man froze to death in his tent in Michigan. On the other side of the coin, we have not entered numerous cases where someone consumed an *Amanita* in the "Destroying Angel" group and had no ill effects or consumed a plateful of *Chlorophyllum molybdites* or some *Amanita muscaria*, etc., without getting sick. We have also not reported on the huge number of cases (roughly 33% of the total) where the cause of the poisoning is unclear due to the ingestion of several species at a time or due to the failure to preserve or produce any of the mushrooms for later identification.

The reports that have been summarized here are voluntary reports. In some regions (the Rocky Mountain region and the Pacific Northwest) the reporting is quite extensive (though undoubtedly not complete). In other regions the reporting is very spotty because at times during the past 23 years there have been few active experts in the area. Sometimes one can be quite certain about what mushroom was consumed, but at other times it is just an educated guess based on mushrooms gathered near where the suspect mushrooms were picked or from pictures that the victim pointed out in a book.

We have generally not attempted to use the most current name but have followed the names used in the reports. The approach has also been

that of a "lumper." For example, *Armillaria mellea* and *Laetiporus sulphureus*; are now recognized as complexes of several species, but there has often been no way to figure out what the actual culprit was, though by looking at the location one can sometimes make a good guess. A confounding factor here is that mushrooms can be contaminated by bacteria and molds, and the symptoms from bacterial and mold contamination are extremely similar to most mushroom poisoning symptoms. Some of the cases certainly do appear to have resulted from consumption of spoiled mushrooms that were old before consumption or had been frozen raw (which allows the bacteria to keep growing). Also, for mushrooms growing in lawns, flower beds, along roads, and on golf courses there is the question of contamination by insecticides or heavy metals. In a few cases there was specific recollection of a recent Malathion or other insecticide spray. We have a Table of Poisonings where alcohol is implicated because there were individuals who said that they could eat the mushrooms if they did not drink alcohol. We are certain that several additional GI cases were also alcohol-related. We have tabulated all of the reported dermatitis cases because that information has remained scattered. Where the case involved both dermatitis and GI symptoms, the event was tabulated in both tables.

We were surprised at some of the things that we found (or did not find). In over 2,000 reports, there were only three cases total involving a *Cortinarius* species, even though that is a huge genus with many large, fleshy fungi. We did not find a single mention of a poisoning that matched the symptoms of orellanine poisonings. So far, orellanine has been found in only one small brown *Cortinarius* species in North America. A further check of other available sources also failed to come up with any orellanine cases anywhere in North America. While we have often seen 50% quoted as a death rate for consumption of mushrooms containing amatoxins, we calculated an 11% death rate for reported cases of people who became ill. The overall rate of death from amatoxins is well under 10% when you count the people who showed no symptoms. Furthermore, we only found record of five liver transplants for a transplant rate of 3.5% in amatoxin cases. From other sources, we know that *Galerina autumnalis* can be fatal, but none of those reports has made

its way into the database. Similarly, many cases of *Galerina autumnalis* ingestion that did not lead to death did not make this report. The one death reported from mushrooms causing GI symptoms with unknown toxins/irritants was from *Boletus pulcherrimus*. To our surprise, there were no reported deaths from the mushrooms noted for causing kidney failure, *Amanita smithiana* and *Paxillus involutus*. Though *Amanita smithiana* was at one time thought to contain orellanine, orellanine is not present. The toxin in *Amanita smithiana* is allenic norleucine that is probably bound to a sugar in the mushroom. A second compound, chlorocrotylglycine, may also be toxic. The toxins in *Paxillus involutus* are unknown. We found cases where mothers became ill from a mushroom ingestion, and nursing infants (and nursing puppies) became ill (the puppy died) from toxins in the milk. Though many people still eat *Gyromitra esculenta*, the large number of cases found where there was liver and/or kidney damage will, we hope, lead individuals to cease this practice.

In examining animal poisoning cases, we were struck by how frequently dogs (and even cats) consume either *Amanita muscaria* or *Amanita pantherina*. Neither of these species is deadly in humans, but both can be lethal to cats and dogs. Similarly there were deaths of dogs from both *Inocybe* species and *Scleroderma* species, though we have no record of human deaths from these same species. We looked for mushroom poisonings of horses or cows. There were no poisonings recorded for these animals, though there were two poisonings recorded for a pig, including one death. We tried to answer a question for a woman from Oregon whose prize horse was healthy one day and dead the next. Her pasture was full of mushrooms. Her vet said that similar deaths of horses are not all that unusual. We hope that someone who reads this will become curious and someday have an answer to whether or not mushrooms are involved in these mysterious horse deaths.

Table 1
Summary of Human Poisonings (excluding Dermatitis)

| Classification | Individuals Reported Sick | Typical # Reported Cases/Year | % of total | Number of Deaths (not counting shock) | % Deaths |
|----------------------------|---------------------------|-------------------------------|------------|---------------------------------------|----------|
| Grand Total | 1,641 | 70 | | 17 | 1% |
| Amatoxins | 147 | 6 | 8.9% | 16 | 11% |
| Gyromitra, Helvella, Verpa | 68 | 3 | 4.1% | 0 | 0 |
| Morels | 52 + 77 (one big case) | 3 | 3% | 0 | 0 |
| Isoxazoles | 218 | 10 | 13% | 0 | 0 |
| Psilocybin | 108 | 5 | 6.6% | 0 | 0 |
| Total GI | 959 | 40 | 58% | 1 | 0.1% |
| Chlorophyllum | 176 | 8 | 10.7% | 0 | 0 |
| Omphalotus | 98 | 4.5 | 5.9% | 0 | 0 |
| Leccinum | 58 | 3 | 3.5% | 0 | 0 |

Table 2
Summary of Animal Poisonings

| Animal | Type of Mushroom | Number Affected | Number Died | Number Euthanized | Total % Dead |
|--------|------------------|-----------------|-------------|-------------------|--------------|
| Cat | Amatoxin | 1–2 | 1 | 0 | 50% |
| Cat | Isoxazoles | 10 | 1 | 0 | 10% |
| Cat | GI Irritants | 3 | 1 | 0 | 33% |
| Dog | Amatoxin | 11 | 4 | 4 | 72% |
| Dog | Isoxazoles | 61 | 1 | 2 | 5% |
| Dog | GI Irritants | 47 | 7 | 0 | 15% |
| Pig | GI Irritants | 2 | 1 | 0 | 50% |

Table 3
Human Liver Damage and Kidney Failure Cases

| Species | Number Poisoned | Liver Damage | | Kidney Failure | |
|--|-----------------|--------------|-------|----------------|--------|
| | | Number | Total | Number | %Total |
| <i>Amanita bisporigera</i> | 18 | 12 | 67% | 1 | 5.6% |
| <i>Amanita brunnescens</i> | 6 | 5 | 83% | 0 | 0% |
| <i>Amanita smithiana</i> | 8 | 0 | 0% | 6 | 75% |
| <i>Amanita ocreata</i> | 9 | 9 | 100% | 7 | 78% |
| <i>Amanita phalloides</i> | 55 | 24 | 44% | 3 | 5.5% |
| <i>Amanita verna</i> | 8 | 4 | 50% | 1 | 12% |
| <i>Amanita virosa</i> | 26 | 3 | 11% | 3 | 11% |
| <i>Amanita spp</i> | 10 | 7 | 70% | 2 | 20% |
| <i>Galerina autumnalis & Galerina sp</i> | 10 | 6 | 60% | 1 | 10% |
| <i>Lepiota josserandii</i> | 2 | 2 | 100% | 1 | 50% |
| <i>Lepiota subincarnata</i> | 1 | 1 | 100% | 1 | 100% |
| <i>Gyromitra esculenta</i> | 27 | 9 | 33% | 3 | 11% |
| <i>Paxillus involutus</i> | 3 | 0 | 0% | 2 | 67% |
| Unknown species | --- | 7 | --- | 2 | --- |

Table 4
Amatoxin Syndrome: Poisoning by the Amanitins

| Species & Location¹ | Number & Onset² | Symptoms¹ |
|---|---|---|
| <i>Amanita bisporigera</i> AR, MI(2), MN, MO, NJ, OH, ON, QC, RI | 16 adult+ 2 child 7–15(24) hrs avg 10 hr | Full gastrointestinal(18), cramps(5), kidney failure, liver damage(12), muscle spasms, salivation(2), drowsy, sweating(3), weakness(3), liver transplant(1), DEATH(2), elevated prothrombin time(2) |
| <i>Amanita brunnescens</i> CA, ID | 3 adult+ 3 child 6–18 hrs avg 16 hr | Severe gastrointestinal distress(5), mild GI, chills, sweating, liver damage(5) |
| <i>Amanita magnivelaris</i> RI | 2 adults 24 hrs | Severe gastrointestinal distress(2), DEATH(1) |
| <i>Amanita ocreata</i> CA(2), OR(2) | 9 adults 6–15 hrs avg 10 hr | Gastrointestinal distress, cramps(2), disoriented(5), hypotension, kidney failure (7), liver damage(9), weak(2), DEATH(4) |
| <i>Amanita phalloides</i> BC CA(11), CT, NY, NJ, OR(2), PA, WA(2) | 52 adult+ 3 child (4) 6–12(30) hrs avg. 10 hrs | Gastrointestinal distress (49), bloody vomit, chills(2), cramps(17), Convulsions(3), disoriented(13), dyspnea(3), fever (8), severe headache, hypotension, salivation, drowsy, sweating(8), unconscious, weak(13), high prothrombin, coagulopathy, hyponatremia, respiratory failure(3), kidney failure(3), liver damage(24), liver transplant(3), DEATH(2) |
| <i>Amanita verna</i> MI, MS, WA | 6 adult+ 2 child (0.3)5–12 hrs avg 9 hr | Gastrointestinal distress(6), chills, cramps(2), disoriented, kidney failure, liver damage(4), sweating, cerebral edema, DEATH(1) |
| <i>Amanita virosa</i> CT, DC(3), CT, MI, MN, NJ, NY(5); QC, RI | 23 adult+ 3 child (0.5)6–24 hrs avg 12 hr | Gastrointestinal distress(23), severe GI, chills(2), cramps(4), convulsions, disoriented(5), fever, flushing, hypotension, kidney failure(3), liver damage(3), muscle spasms, nausea, drowsy(3), weak(5), edema, thick feeling in tongue, DEATH(1) |
| <i>Amanita</i> spp. FL, GA, KY, OR, NY, VA | 9 adult+ 1 child 8–24 hrs avg 12 hr | Gastrointestinal distress (9), cramps(2), kidney failure(2), liver damage(7), mydriasis(2), drowsy, unconscious(2), weak, DEATH(3) |
| <i>Galerina autumnalis/venenata</i> AR, IL, KS, MI, OH, OR, WA | 8 adult+ 1 child 6–21 hrs avg 13 hr | Gastrointestinal distress(6), blood in vomit or diarrhea, cramps(6), dehydrated, disoriented(2), hematemesis, drowsy(2), weak(3), liver damage(5), unable to walk, dry heaves, infant poisoned from nursing |
| <i>Galerina</i> sp OH | adult, 9 hrs | Severe gastrointestinal distress, liver damage |
| <i>Lepiota josserandii</i> NY(2) | 2 adults 9–15 hrs avg 12 hr | Gastrointestinal distress, confused, kidney failure, liver damage(2), respiratory distress, liver transplant(1), DEATH(1) |
| <i>Lepiota subincarnata</i> BC | adult, 13 hrs | GI, kidney failure, liver damage, drowsy, DEATH(1) |

1 Number in parentheses is number of times observed.

2 Number in parentheses is one report of unusually long or short onset not included in average.

Long Delayed-Onset Renal Failure: Orellanine or Cortinarin Poisoning in North America: NONE REPORTED

Table 5
Inebriation and Poisoning by Isoxazole Compounds
(Muscimol, Ibotenic Acid, etc.)

| Species & Location¹ | Number & Onset² | Symptoms¹ |
|--|--|---|
| <i>Amanita muscaria</i> AB(2), AK, CO(28), D(12), MA, MD, MT(6), NJ(9), NY, OH(2), OR(8), PA(3), RI(3), SK, WV(2), VA(2), WA(7), WY(6) | 107 adult+ 2 child 0.5–3(12) hrs avg 1.5 hr | Gastrointestinal distress (100), visual and/or time disturbances(39), atrial fibrillation(3), ataxic(3), chills(12), cramps(4), convulsions(3), disoriented(67), hematemesis, malaise, muscle spasm(47), nausea, salivation(3), drowsy(37), sweating(24), unconscious(11), deafness, out of body feeling, kidney polyuria, hypothermia. One death from freezing to death in a tent after consuming the mushrooms. |
| <i>Amanita pantherina</i> BC(2), CA, CO(27), ID(11), MI, MT(7), NM, ON, OR(30), WA(14), WY | 104 adult+ 5 child 0.3–6 hrs avg 2.4 hr | Gastrointestinal distress(48), visual and/or time disturbances(72), anxiety(3), ataxic(9), cramps(9), disoriented(33), headache(6), fever(6), flushing, liver failure(1), muscle spasms 18, mydriasis, nausea(6), salivation(6), drowsy(12), sweating(6), unconscious(9), weakness(18), respiratory failure, kidney hematuria(2), dermatitis(2), violent(2) |

1 Number in parentheses is number of times observed.

2 Number in parentheses is one report of unusually long or short onset not included in average.

Table 6
Mushrooms with Unique Toxins, Kidney Failure Common

| Species & Location¹ | Number & Onset² | Symptoms¹ |
|---|--|---|
| <i>Amanita smithiana</i> BC(2), OR(2), WA(3) | 8 adult 6–11 hrs avg 8 hr | Gastrointestinal distress(6), anxiety, chills, cramps(3), disorientation, kidney failure(6), malaise(2), sweating, weakness, warm feeling, oliguria, polyurea, thirst |
| <i>Paxillus involutus</i> OR, WA | 1 adult at 6 days 2 adults at 0.25 hr | Kidney failure(2), incoherent, thirsty, hematemesis, muscle spasm, severe back pain, dry mouth, vomiting |

1 Number in parentheses is number of times observed.

2 Number in parentheses is one report of unusually long or short onset not included in average.

Table 7
Gyromitrin Poisoning Suspected due to Hydrazines and Morel Poisonings

| Species & Location¹ | Number & Onset² | Symptoms¹ |
|---|--|--|
| <i>Gyromitra brunnea</i> ID | adult, 2–3 hrs | Gastrointestinal distress, sweating |
| <i>Gyromitra esculenta</i> AK(2), IA, ID(2), MA, MI(17), QC, WA | 24 adult+ 3 child 1–9(12) hrs avg 6 hr | Gastrointestinal distress(27), anxiety, atrial fibrillation(3), chills(4), cramps, disoriented(6), dreams, fever, flushing(2), headache(2) jaundice, kidney failure(3), liver damage(9), muscle spasms, sweating(9), weak(5), methemoglobinemia, kidney hematuria, sensitive to sound |
| <i>Gyromitra gigas/montana</i> ID(9), MT(2), OR(3) | 8 adult+ 1 child 2–9 hrs avg 5 hr | Gastrointestinal distress(7), chills(2), cramps(3), jaundice, muscle spasm(3) |
| <i>Gyromitra spp</i> ID(6), MI(3), MT(5),) OR(3) | 22 adult+ 1 child 0.3–11 (24) hrs avg 3.5 hr | Gastrointestinal distress(18), ataxic, chills(4), convulsions, cramps(6) + severe cramps(4), isoriented(4), fever(2), headache(6), hematemesis, jaundice, liver damage, malaise, salivation, sweating(4), weakness(4), hot flashes(2), light sensitive, bilirubinemia, numb, neck pain |
| <i>Helvella spp.</i> CO | 1 adult, 2 hrs | Nausea, headache, hypotension, floating feeling |
| <i>Morchella angusticeps</i> MI, MT | 2 adults 0.5 hrs | Gastrointestinal upset, nausea burning throat |
| <i>Morchella deliciosa</i> NC, CO | 2 adults 2.5 & 12 hrs | Gastrointestinal distress |
| <i>Morchella elata</i> BC, MT, OR(3), WA(4) | 9 adults 0.1–3 hrs avg 1.5 hr | Gastrointestinal distress(6) + 1 severe GI, cramps(2), disoriented(1), fever, nausea, sensitive to sound, unconscious, weakness(2), eaten raw = immediate numb mouth and throat |
| <i>Morchella esculenta</i> ID, MD, MI(2), MO, NE, NJ, NY, WA(3) | 11 adult+ child 0.3–4.5 hrs avg 2.5 hr | Gastrointestinal distress(10) + severe GI(2,raw), chills(3), cramps(3), disoriented, nausea(2), sweating, weakness(3), flatulence, numb hands, sneezing(24 hrs) |
| <i>Morchella spp</i> CA, CO, ID(7), IL, MT(6), NM, OH(2), OR(3), WA | 25 adult+ 2 child 0.1–5.5 hrs avg 2.3 hr | Gastrointestinal distress(26), chills(3) + severe chills, cramps(4), disoriented(5), fever, flushing(3), headache(7), hallucinations, muscle spasms(2), nausea, salivation, sweating(7), weakness(7), hot flashes, burning throat, bloated |
| Raw <i>Morchella spp</i> BC | 77 adults (of 483) 0.3 hrs | Gastrointestinal distress(77), bloating(4), cramps(7), flushing, sweating, and thirst (all at one banquet) |
| <i>Verpa bohemica</i> CO(3), ID, MT(2), OR | 8 adult+ 1 child 2–5 hrs avg 3.3 hr | Gastrointestinal distress(6), chills, cramps, disoriented(2), fever, flushing, headache, hypotension, malaise(3), nausea, salivation(2), sweating(2), vomiting, bloated, light-headed, hot flashes, dehydrated |

1 Number in parentheses is number of times observed.

2 Number in parentheses is one report of unusually long or short onset not included in average.

Table 8
Poisonings where Effects Appear to Be Associated with Alcohol Consumption

| Species & Location¹ | Number & Onset² | Symptoms¹ |
|--|---------------------------------------|--|
| <i>Armillaria mellea</i> OR | 4 adult, 5 hrs | The four beer drinkers in the group were much sicker than others (all with gastrointestinal distress). |
| <i>Boletus barrowsii</i> CO | adult 1–5 hrs | Person has 15-year history of adverse gastrointestinal reaction if alcohol is consumed with this species. |
| <i>Boletus</i> sp (red top) WY | adult, 5 hrs | Gastrointestinal distress, chills, fever, disoriented, salivation, dermatitis |
| <i>Clitocybe clavipes</i> MI | adult, 2 hrs | Tachycardia and palpitations, tingling arms and legs, flushing |
| <i>Coprinus atramentarius</i> AK, ID(3), MI, MN, NY, WY(6) | adult 0.1–51.5 hrs | Tachycardia and palpitations(6), tingling arms and legs(6), flushing(6), headache, heavy limbs, salivation (time depending on when alcohol was taken). |
| <i>Coprinus comatus</i> MI, NH | 3 adults 0.5–2 hrs | Gastrointestinal distress(2), cramps, chills, salivation, drowsy, sweating(2) |
| <i>Coprinus quadrifidus</i> KS | adult, 27 hrs | Tachycardia and palpitations, tingling arms and legs, flushing (time depending upon alcohol use). |
| <i>Coprinus</i> sp OH | adult, 4 hrs | Gastrointestinal distress, chills, muscle spasms, sweating, weakness |
| <i>Morchella angusticeps</i> MI, CO | 2 adult 3 & 4.5 hrs | Gastrointestinal distress, disorientation, throat constricted |
| <i>Morchella elata</i> + <i>M. semilibra</i> OH | adult, 0.5 hr 0.5 hour | Gastrointestinal distress, cramps, muscle spasm |
| <i>Morchella</i> spp MT, CO | 3 adult 10 hrs | Severe cramps, disoriented, headache, muscle spasm, nausea(3) |
| <i>Pholiota squarrosa</i> CO | adult, 4.5 hrs | Gastrointestinal distress |
| <i>Pleurotus ostreatus</i> MI, OR | 2 adult 0.3 & 1.5 hour | Tachycardia and palpitations, tingling arms and legs, flushing, nausea, weakness, sweating, hallucinations |
| <i>Pleurotus</i> sp WI | Adult 5 hours | Gastrointestinal distress, flushing, hypotension, muscle spasm, tachycardia |

1 Number in parentheses is number of times observed.

2 Number in parentheses is one report of unusually long or short onset not included in average.

Table 9

Hallucinogenic Syndrome: Effects of Psilocybin and Psilocin and other Tryptamines

| Species & Location¹ | Number & Onset² | Symptoms¹ |
|---|---|--|
| <i>Gymnopilus cf. luteofolius</i> NY | adult, 1 hr | Gastrointestinal distress, hallucinations |
| <i>Gymnopilus spectabilis</i> MA, MI, NJ(2), NY, OH, OR, RI, VA | 15 adult 0.3–2.5 hr avg 1.5 hr | Gastrointestinal distress(2), anxiety(2), agitation, disoriented(7), flushing(2), nausea(2), hallucinations(10), drowsy, blurred vision, weakness, tingling limbs(3), numb(3), chest pain, paranoid(2) |
| <i>Panaeolus acuminatus</i> BC | adult, 3 hrs | Cramps |
| <i>Panaeolus campanulatus</i> OH | adult | Nausea and sweating, an apparent panic reaction due to fear of having made an error. |
| <i>Panaeolus foenisecii</i> CA(2), CO(3), ID, MA, MI(2), MT, OR(3), WA | 8 adult+ 10 child 0.1–11(16) hrs avg 3 hrs | Gastrointestinal distress(9), disoriented(6), fever(3), flushing(2), nausea(6), hallucinations(7), salivation, drowsy(2), unconscious, angiodema, euphoric, insomnia, dermatitis(2), hives, screaming |
| <i>Panaeolus papilionaceus</i> ME, ID | adult+ 3 child 0.5 hr | Flushing, gastrointestinal distress(4), weakness |
| <i>Panaeolus</i> spp MT, HI | 2 adult, 0.8–1 hr | Hallucinations(2), agitation, cramps, nausea |
| <i>Psilocybe azurescens</i> OR | adults ~1 hour | Anonymous report that several times recreational use led to loss of muscular control & inability to walk for 6–10 hours. |
| <i>Psilocybe baeocystis</i> OR | adult, 0.6 hr | Anxiety, flushing, gastrointestinal distress, muscle spasms, tight chest |
| <i>Psilocybe cubensis</i> CA, CO(2), ID, MT, OH, OR(3) Note: Usually illicitly cultivated and often adulterated. | 14 adult 0.2–2.5 hrs avg 1 hr | Hallucinations(8), anxiety(2), ataxic(2), severe convulsions, disoriented(4), drunk feeling, hypotension(2), malaise, muscle spasms, mydriasis(3), nausea, salivation(3), sweating, tachycardia(2), unconscious(2), aggressive, detached, severe, rhabdomyolysis, respiratory arrest, violent. 1 DEATH from anaphylactic shock (allergic reaction) |
| <i>Psilocybe cyanescens</i> CA(2), CO, NC, OR(3) | 8 adult 0.2–4.5 hr, avg 1 hr | Hallucinations(6), agitated, chills, disoriented(3), fever, flushing(2), sweating(2), weak, coordination loss |
| <i>Psilocybe semilanceata</i> CA, OR(6), WA(5) | 15 adult+ 3 child 0.5–3(12) hr avg 2 hr | Hallucinations(15), anxiety(2), chills, cramps(3), disoriented(8), GI(10), mydriasis, drowsy(4), suicidal, unconscious, unable to walk, severe dermatitis |
| <i>Psilocybe stuntzii</i> OR(2) | 2 child 1.5 hour | Gastrointestinal distress, disoriented |
| <i>Psilocybe l subcaerulescens</i> M | child | Hallucinations |

1 Number in parentheses is number of times observed.

2 Number in parentheses is one report of unusually long or short onset not included in average.

Table 9, Hallucinogenic Syndrome: Effects of Psilocybin and Psilocin and Other Tryptamines, cont.

| Species & Location¹ | Number & Onset² | Symptoms¹ |
|--|--|--|
| <i>Psilocybe</i> spp CA, CO(3), FL, HI, NY(3), OR(6), WA | 21 adult avg 1.3 hr 0.6-3.5 (36)hrs | Hallucinations(15), gastrointestinal distress(5)+ severe GI(3), anxiety(5), atrial fibrillation, ataxic, chills(2), cramps(2), convulsions, kidney failure, liver damage, malaise, muscle spasms, mydriasis(2), salivation, drowsy(2), sweating, tachycardia(3), nausea, unconscious, suicidal, dry mouth(2), miosis, "freaking out," seizure, cold extremities, kidney polyuria |

1 Number in parentheses is number of times observed.

2 Number in parentheses is one report of unusually long or short onset not included in average.

Table 10
Cases Involving Dermatitis or Spore Inhalation

| Species & Location | Ingest | Spore | Onset | Symptoms |
|---|--------|--------|-------|---|
| 35 species WA(2) | no | | - | #1: joint stiffness, pain; #2: fluid retention |
| <i>Aman. pantherina</i> WY | yes | | 4.5 | Gastrointestinal, etc, dermatitis |
| <i>Bol. pulcherrimus</i> OR | yes | | 0.8 | Gastrointestinal, etc. dermatitis |
| <i>Boletus sp</i> WY | yes | | 5 | Gastrointestinal, etc. dermatitis |
| <i>Calvatia gigantea</i> NY | yes | | 0.01 | Flushing, burning rash around mouth |
| <i>Canth. cibarius</i> OR | yes | | 3 | Edema, hives, numbness |
| <i>C. molybditum</i> TX | yes | | 0.5 | Dermatitis |
| <i>C. nebularis</i> WA | yes | | 1 | Hives |
| <i>C. semisanguineus</i> QC | yes | | - | Cramps, dermatitis |
| <i>Cort sp, C. vinicolor, O. olivascens</i> CA | no | | - | Itchy rash eyelids and inner thighs |
| <i>Gyromitra</i> prob. <i>esculenta</i> ID(2) | no | | 1 | #1: Tight chest, scratchy throat; #2 "skin on fire" |
| <i>Laetiporus sulphureus</i> OR, WI | yes | | 0.5 | #1: GI, etc, dermatitis, DEATH (shock) |
| | yes | | 14-18 | #2: severe rash, whole body like P. Ivy |
| <i>Lentinus edodes</i> NY | yes | | 9 | GI, hives on scalp, neck & shoulder |
| <i>Leucoagar. naucina</i> | yes | | 48 | Long-lasting whole-body rash |
| <i>Omphalotus olearius</i> GA(2) | no | | 0.1 | Contact with "juice" resulted in immediate burning sensation, like an acid burn (2) |
| <i>Panaeolus foenisecii</i> CA, MI, OR | yes | | - | #1: Gastrointestinal, etc., dermatitis |
| | yes | | - | #2: Nausea etc., dermatitis, hives |
| | no | | - | #3: Tingling & Itching hand & forearm |
| <i>Phallus impudicus</i> CO(2) | no | | 0.2 | #1: hives, erythema |
| | no | | 1-2 | #2: rash & welts, nausea |
| <i>Phallus hadriani</i> CO | no | | 0.1 | Tingling fingers, numb |
| <i>Pleurotus ostreatus</i> | no | Inhale | - | Diarrhea, runny nose and eyes |
| <i>P. semilanceata</i> WA | yes | | - | hallucinations sv dermatitis |
| <i>S. citrinum</i> OR | no | Inhale | 0.1 | GI, tachycardia, unconscious, sneezing |
| <i>S. citrinum</i> & <i>S. macrorhizon</i> MI(2) | no | Inhale | 1 | Dyspnea, conjunct, rhinitis & rhinorrhea, lacrimation (both times) |
| <i>Suillus americanus</i> MI(2), MA | no | | 24 | #1 & #2: dermatitis |
| | yes | | 24 | #3: eye irritation, tears, poison-ivy-like rash |
| <i>S. americanus</i> & <i>S. granulatus</i> NH(2) | no | | 18 | Dermatitis face & neck, swollen face & eyes both times |
| <i>S. granulatus</i> MA(2) | no | | 24 | Poison Ivy-like facial dermatitis both cases |
| <i>Suillus luteus?</i> NY(2) | no | | - | Edema, severe itching face & groin, puffy face |
| <i>Suillus pungens?</i> CA | yes | | 12 | Dermatitis, swollen face, etc. |

Table 11
Gastrointestinal Syndrome

| Species & Location¹ | Number & Onset² | Symptoms¹ |
|--|--|--|
| <i>Agaricus arvensis</i> PA | 2 adult, 2 hr | Both gastrointestinal distress, chills, drowsy, and weak |
| <i>Agaricus augustus</i> WA(3) | 4 adult 2.5–6 hr, avg 4 hr | Gastrointestinal distress, chills, cramps, dyspnea, nausea, sweating, rhinitis, sneezing, face numb |
| <i>Agaricus californicus</i> OR, CA | 1 adult + 1 child 0.5 hr | Gastrointestinal distress, chills, nausea, weak (one event was suicide attempt, but the wrong mushroom to die from) |
| <i>Agaricus hondensis</i> BC, CA, WA | 3 adult 0.2–0.7 avg 0.4 hr | Gastrointestinal distress(2), severe cramps |
| <i>Agaricus placomyces & praeclaresquamosum</i> ID, MI, OR(2), WI, WV | 5 adult + 1 child 0.5–5 hrs avg 2 hr | Gastrointestinal distress(4), cramps, headache, nausea, sweating, sneezing, rhinorrhea |
| <i>Agaricus xanthodermus</i> complex, CA(2), CO(6), ID(5), MT(2) | 11 adult + 5 child 0.3–6 hrs avg 2 hr | Gastrointestinal distress(11) + severe GI(2), cramps (4), disoriented(2), fever, flushing(2), headache(2), nausea, hypotension, malaise, sweating(2), numb, warm feeling |
| <i>Agaricus</i> (commercial) WA | adult, 0.1 hr | Gastrointestinal distress, severe disorientation, sweating, weak, difficulty balancing |
| <i>Agaricus</i> spp CA, CO(5), HI, ID, NM, NV, OK, OR, TX | 16 adult + 5 child 0.3–5 hrs avg 1.7 hr | Gastrointestinal distress (17), flushing(2), headache, sweating, tachycardia |
| <i>Agrocybe dura</i> NJ, OH | 2 child, 1&10 hr | Gastrointestinal distress |
| <i>A. pediades?</i> OR | child, 14.5 hr | Gastrointestinal distress, hallucinations |
| <i>A. praecox</i> NM | child, 12 hr | Gastrointestinal distress, chills, drowsy |
| <i>Agrocybe</i> sp OK | 2 child, 0.6 hr | Gastrointestinal distress |
| <i>Amanita flaviconia</i> RI | 2 adult, 4 hr | Both with gastrointestinal distress, anxiety, bradycardia, flushing, headache, salivation, sweating |
| <i>A. flavorubescens</i> NY | child | Gastrointestinal distress |
| <i>Amanita frostiana</i> AZ | adult, 0.3 hrs | Nausea, chills |
| <i>A. gemmata & A. crenulata</i> NH(3), OR | 5 adult 0.2–2(14) hr | Gastrointestinal distress(2), disoriented(2), flushing, weak(2), sweating, visual, drunk-feeling |
| <i>Amanita inaurata</i> MT | adult, 0.6 hr | GI, sweating, nystagmus, blurred vision |
| <i>Amanita rhoadsii</i> FL | adult, 1.5 hr | Gastrointestinal distress |

1 Number in parentheses is number of times observed.

2 Number in parentheses is one report of unusually long or short onset not included in average.

Table 11, Gastrointestinal Syndrome, cont.

| Species & Location¹ | Number & Onset² | Symptoms¹ |
|--|--|--|
| <i>Amanita rubescens</i> CA(2), NJ | 3 adult 1&5 hr, avg 4 hr | GI(2) + severe GI, anxiety, chills, flushing, sweating, weak(2) |
| <i>A. russuloides</i> NJ | adult, 3.5 hrs | Gastrointestinal distress, drowsy |
| <i>Amanita spreta</i> ME | 2 adult, 3 hrs | Atrial fibrillation, bradycardia, gastrointestinal distress |
| <i>A. triangulibulbosa</i> CA | adult, 2 hrs | Gastrointestinal distress |
| <i>Amanita vaginata</i> ND, WA | 2 adult 4 & 9 hrs | GI(2), chills, cramps, disoriented, hallucinations, drowsy, sweating |
| <i>Amanita velatipes</i> WV, QC | 3 adult 6 hr | Gastrointestinal distress(3), chills, hallucinations (1or2?), atrial fibrillation(1or2?) |
| <i>Amanita velosa</i> CA | adult, 4–5 hr | Unconscious |
| <i>A. sec. Lepidella</i> OR | child, 2 hr | Gastrointestinal distress, disoriented, flushing, drowsy |
| <i>Amanita spp.</i> OR, NJ(2) | 3 adult + 1 child 1.5, 3, 12 hrs | Gastrointestinal distress(4), chills, disoriented, muscle spasms, drowsy(2), weak |
| <i>Armillaria albolanaripes</i> WA | 2 adult + 1 child, 4 hrs | Gastrointestinal distress(3) |
| <i>Armillaria mellea</i> group BC, ME, MI(2), NM, NY(2), OR(8), PA, WA(2), VT | 38+ adult 0.2–11 hrs avg 4 hrs | Gastrointestinal distress(32+) + severe GI(3), chills(5), cramps(5), flushing(3), mydriasis, drowsy, sweating(7), weak(13), dehydrated, hypothermic(4) |
| <i>A. tabescens</i> LA | 2 adult, 1 hr | Gastrointestinal distress+ severe GI, salivation, sweating |
| <i>Boletus edulis</i> & <i>B. barrowsii</i> CA, CO(5), CT, NH, WA | 13 adult 0.3–3(9) hrs avg 2 hrs | Gastrointestinal distress(11), atrial fibrillation, bradycardia, chills(2), severe cramps(2), disoriented, flushing(2), weak(2), itchy throat |
| <i>Boletus pulcherrimus</i> OR | 2 adult 0.8 hrs | Gastrointestinal distress(2), fever, hypotension(2), dermatitis, Mallory-Weiss syndrome, DEATH(1) |
| <i>Boletus regius</i> CA | adult, 1.5 hrs | Nausea |
| <i>Boletus satanas</i> CA(3), OR | 4 adult 0.1-2.5 hr, avg 1.5 | Gastrointestinal distress(4), hematemesis, salivation, sweating, weak, hypothermic, pallid |
| <i>Boletus sensibilis</i> NH | 2 adult 2 hrs | Gastrointestinal distress(2), severe cramps(2), thirsty(2), leucocytosis, fever, numb |
| <i>B. subflammeus</i> MI | adult, 3 hrs | Gastrointestinal distress |
| <i>B. subvelutipes</i> NY | adult, 2 hrs | Gastrointestinal distress |
| <i>Boletus spp.</i> CA, NC, NH, OR | 4 adult + 2 child 0.5-4 hr, avg 1.7 | Gastrointestinal distress(5), cramps, disoriented, headache(2), bloating, belching |

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2 Number in parentheses is one report of unusually long or short onset not included in average.

Table 11, Gastrointestinal Syndrome, cont.

| Species & Location¹ | Number & Onset² | Symptoms¹ |
|--|---|---|
| <i>Caloscypha fulgens</i> WA | adult onset unkn | Ataxic, muscle spasms, weak, shallow breathing |
| <i>Calvatia fumosa</i> CA | 2 adult, 3 hrs | Both disoriented, hypotension, nausea, unconscious, weak |
| <i>Calvatia gigantea</i> NY | adult, 9 hrs | Gastrointestinal distress, drowsy |
| <i>Cantharellus cibarius</i> & <i>formosus</i> CA, CO(2), MI, OR(8), PA, WA(3) | 17 adult 0.2-7(12) hrs avg 1.8 hr | Gastrointestinal distress(11) + severe GI, ataxic, chills(4), cramps(5) + severe cramps, disoriented(2), hallucinations(2), malaise, sweating(2), sound sensitive, weak, swollen limbs, tight chest |
| <i>C. infundibuliformis</i> WA | adult onset unkn | Gastrointestinal distress, fever |
| <i>C. subalbidus</i> OR | adult, 2 hrs | Gastrointestinal distress, chills |
| <i>Catathelasma ventricosa</i> NM | 2 adults 2-3 hrs | Gastrointestinal distress, sweating |
| Cooked <i>Chlorophyllum molybdites</i> AL, CA, CO(19), CT, DC, FL, HI(3), IA(2), MD, VA MI(2), MX, NH, NJ(6), NM, OH(5), SC, TX | 60 adult 0.5-6 hrs avg 3.5 hr | Gastrointestinal distress (52), anxiety(2), bradycardia(4), chills(4), convulsions(4), disoriented(2), dyspnea(2), fever(4), flushing, hypotension(6), muscle spasms (2), sweating(12), tachycardia, weak(4), tight chest |
| Raw <i>C. molybdites</i> AR(2), AZ(2), CO(53), DC, FL(2), HI(9), IA(9), IL(3), LA, MI, MO, MX(2), NC(3), NJ(9), NM(2), NV(3), OH(2), OK, PA, SC, TN(2), TX(3) | 106 adult + 10 child 0.5-8(12) hrs avg 2.7 hrs | Gastrointestinal distress(80) + severe GI(20), blood in vomit/diarrhea(7), hematemesis (15), hypotension(5), salivation(10), sweating(25), fever(10), flushing(5), chills(15), hallucinations(2), tachycardia, unconscious, weak(10), dermatitis(2), burning mouth and throat, shock, kidney hematuria(2) |
| <i>Clitocybe inversa</i> OR | adult, 1.5-2 hrs | GI, disoriented, flushing, sweating, salivation, weak |
| <i>C. nebularis</i> WA | adult, 1 hr | Gastrointestinal distress, hives |
| <i>Clitocybe nuda</i> MA, NY(2), OR, WA | 6 adult 2-18 hr, avg 11 | Gastrointestinal distress(5) + severe GI, cramps, disoriented, headache, malaise, salivation, weak(2) |
| <i>Clitocybe</i> spp. CA(2), CO, ID, MT | 8 adult 0.5-3(12) hr | Gastrointestinal distress(7), bradycardia, chills, cramps(3), disoriented, malaise, sweating, severe flatulence(2) |
| <i>Clitopilus prunulus</i> CA | adult, 1 hr | Gastrointestinal distress, chills, headache, sweating |
| <i>Collybia acervata</i> OR | 4 adult, 1 hr | Severe gastrointestinal distress(4) |
| <i>Collybia</i> sp. OR | Adult, 0.1 hour | Cramps, light sensitive, pallid, paresthesia, tears |
| <i>Conocybe lactea</i> NJ | Child, onset? | Gastrointestinal distress |

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Table 11, Gastrointestinal Syndrome, cont.

| Species & Location¹ | Number & Onset² | Symptoms¹ |
|---|--|---|
| <i>Conocybe</i> sp. NM | child, 1.5 hrs | Gastrointestinal distress, irritable |
| <i>Coprinus comatus</i> ID, MA(2), MD, ME, MI, NH, ON, OR | 8 adult + 1 child 1–8 hrs avg 4.5 hr | Gastrointestinal distress(7), bloody GI, atrial fibrillation, chills, disoriented, salivation, drowsy(2), sweating(2) |
| <i>Coprinus</i> sp CA, WY | 4 Adult + 1 child 2.5 hrs | Gastrointestinal distress, tachycardia |
| <i>Cortinarius semisanguineus</i> QC | adult, 24 hrs | Cramps and dermatitis from consuming 37 cooked caps |
| <i>C. violaceus</i> WA | adult, 0.75 hr | Drowsy, sneezing |
| <i>Craterellus cornucopioides</i> NC | adult, 1.5 hr | Gastrointestinal distress, chills, sweating |
| <i>Crepidotus</i> sp WA | adult, unkn | Gastrointestinal distress, disorientation, sweating |
| <i>Entoloma abortivum</i> NH | adult, 12 hrs | Gastrointestinal distress, chills, muscle spasms, sweating |
| <i>Entoloma aprile</i> OH | 4 adult, 12 hrs | Gastrointestinal distress, cramps, sweating, dehydrated |
| <i>E. bahusiense</i> CA | adult, 1.1 hrs | Gastrointestinal distress |
| <i>Entoloma grande</i> AB | adult, 0.3 hrs | Gastrointestinal distress, cramps |
| <i>Entoloma luridum</i> QC | 4 adult, 2–3 hrs | Gastrointestinal distress, cramps |
| <i>E. rhodopolium</i> CA | adult, 1 hr | Gastrointestinal distress, sweating |
| <i>Entoloma sinuatum</i> CA | adult, 0.5 hr | Gastrointestinal distress then unconscious |
| <i>Entoloma</i> spp. CO, OH, OR | 4 adult + 1 child 0.6–2.5 hr avg 1.9 | Gastrointestinal distress(2) + severe GI(2), chills(2), cramps, malaise, nausea, weak(2), miosis |
| <i>Flammulina velutipes</i> CO | adult, 2 hrs | Gastrointestinal distress, sweating, weak, may be associated with alcohol consumption |
| <i>Fuscoboletinus paluster</i> QC | adult, 0.1 hr | Dyspnea, flushing, headache, burning throat and tongue |
| <i>Gomphus floccosus</i> CO, ME, WV | 3 adults 3.5–9 hrs, avg 5.5 | Gastrointestinal distress(3), severe cramps(2) |
| <i>Grifola frondosa</i> IN, MA(3), MI(2), NY(2), PA, WI | 10 adult + 2 child 2–6(13.6) hrs avg 3 hr | Gastrointestinal distress(8) + severe GI, chills, convulsions, cramps, disoriented, tinnitus(3), weak(4), drowsy and very drowsy, drunk-feeling |

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Table 11, Gastrointestinal Syndrome, cont.

| Species & Location¹ | Number & Onset² | Symptoms¹ |
|---|---|--|
| <i>Hygrophorus puniceus</i> CA | 2 adult, 1.5 hr | Both with gastrointestinal distress, disoriented, hallucinations |
| <i>Hygrophorus speciosus</i> CO | child, 1 hr | Gastrointestinal distress, chills, headache, sweating, miosis, glassy-eyed |
| <i>Hypholoma sublateralitium</i> DC | child onset unkn | Cramps |
| <i>Hypomyces lactiflorum</i> OR, CA | 2 adult 0.1 & 4 hrs | Severe gastrointestinal distress, disoriented, sweating, weak, burning throat, swelling sensation |
| <i>Inocybe geophylla</i> QC | child, - | Typical muscarinic symptoms |
| <i>Inocybe spp.</i> FL, OH, WA | adult+ 2 child 0.5–1 hr, avg <1 hr | Gastrointestinal distress, cramps, disoriented, hallucinations, salivation |
| <i>Laccaria ochropurpurea</i> MA | adult, 0.5 hr | Gastrointestinal distress |
| <i>Lactarius aquifluus</i> MI | 2 adult, 0.5 hr | Both with gastrointestinal distress |
| <i>L. chelidonium</i> CO | 2 adult, 1.5 hr | Gastrointestinal distress, flatulence |
| <i>Lactarius s</i> sp. NY | 10 adult, 1 hr | All with gastrointestinal distress, cramps |
| <i>Laetiporus sulphureus</i> group, CA(10), CO, MI, NC, OR(6) | 36 adult + 1 child 0.5–4 hrs | Gastrointestinal distress(26) + bloody GI, cramps(2), disoriented(4), fever, flushing, headache(3), nausea(2), salivation, sweating(3), chest pain, dermatitis, nursing baby=vomiting, Death(1) in 19 hrs from 3 bites |
| <i>Leccinum atrostitipitatum</i> AK | adult, 2 hrs | Gastrointestinal distress |
| <i>Leccinum aurantiacum</i> group, CO(6), OR(2), WA | 18 adult 0.5–9 hrs avg 4 hr | Gastrointestinal distress(12) + severe GI(2), ataxic, chills(2), disoriented, malaise, sweating, weak |
| <i>L. fibrillosum</i> CO | child, - | Gastrointestinal distress |
| <i>Leccinum insigne</i> UT | adult, 1 hr | Headache |
| <i>L. manzanitae</i> CA | adult, - | Gastrointestinal distress |
| <i>L. testaceoscabrum</i> AK | adult, 48 hr | GI, lingual lesions (other causes suspected) |
| <i>Leccinum spp.</i> CA, CO(20), MX(5), WY | 31 adult+ 4 child 1.5–12 hr avg 2.6 hr | Gastrointestinal distress(17) + severe GI(3), cramps, disoriented, headache(2), hematemesis(2), malaise(4), nausea(2), blurred vision, weak, dry throat, flatulence(3) |
| <i>Lentinula edodes</i> CA, CO, NY(2), unkn | 5 adult 0.3–9 hr avg 5 hr | Gastrointestinal distress(4), chills(2), disoriented, headache, muscle spasms(2), unconscious, weak(2), hives, difficulty breathing |

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Table 11, Gastrointestinal Syndrome, cont.

| Species & Location¹ | Number & Onset² | Symptoms¹ |
|--|---|---|
| <i>Lepiota cepaestipes</i> OR | adult, - | Gastrointestinal distress, cramps, disoriented |
| <i>Lepiota procera</i> MI | adult, 1 hr | Gastrointestinal distress |
| <i>Lepiota rachodes</i> CA(7), CO(4), ID(2), OR, WA | 15 adult 0.1–10(22) hrs avg 4 hr | Gastrointestinal distress(10) + severe GI(2), chills(2), cramps, convulsions, disorientation, malaise(2), nausea(2), salivation, drowsy, sweating, weak(3), chest pain, rhinitis |
| <i>L. rubrotincta</i> CA(2) | 2 adult, .8 & 1.4 hr | Gastrointestinal distress, nausea |
| <i>Lepiota</i> spp. NE, NM, TX | 3 adult+ 2 child 2.5–7 hr avg 4.5 | Gastrointestinal (3) + bloody GI, bradycardia, headache, hypotension, salivation, sweating, weak, kidney hematuria |
| <i>Leucoagaricus</i> <i>naucinus/leucothites</i> CA(2), FL, ID, NC, OR, QC, WA | 3 adult+ 5 child 0.2–10 hr avg 4 hr | Gastrointestinal distress(7), cramps, nausea, salivation, irritable, acid reflux |
| <i>Leucopaxillus</i> sp. OH | adult, 8 hrs | Gastrointestinal distress |
| <i>Lycoperdon perlatum</i> OR | adult, 1 hr | Gastrointestinal distress |
| <i>Lyophyllum decastes</i> AK, MI, WA | 4 adult 0.3-2 hr avg 1hr | Gastrointestinal distress, hallucinations(2), euphoric(3), tachycardia |
| <i>Macrolepiota venenata</i> NY | adult, 6 hrs | Gastrointestinal distress, chills, disoriented, hypothermic |
| <i>Marasmius oreades</i> CO, MT(2), OR | 2 adult+ 3 child 0.3–1(24) hrs | Gastrointestinal distress(5), hallucinations, sweating(2) Possibly 2 victims result of nearby Malthion application |
| <i>Melanoleuca</i> sp CO | child, 1.5 hrs | Gastrointestinal distress |
| <i>Mycena</i> sp OR(2) | 3 child, 5 & 8 hr | Gastrointestinal distress(2), cramps |
| <i>Nevatogastrium wrightii</i> CA | adult, 1 hr | Gastrointestinal distress |
| <i>Omphalotus olearius</i> & <i>olivascens</i> CA, CT, FL(2), GA, IA, IN(3), MA(2), MD, ME, MI(2) , NC(2), NJ(7), NY(8), OH(5),ON(15), PA, QC(6), VA, WA(3), WV(3) | 96 adult+ 2 child 0.1–6 hrs avg 2 hr | Gastrointestinal distress (80) + severe GI(9), disoriented(3), headache(11), hallucinations, salivation(5), drowsy(6), sweating(8) + severe sweating(5), weak(14), drunk-feeling(2), light-headed(5) |
| <i>Phaeolepiota aurea</i> AK(2), WA(2) | 4 adult 0.5–2(17) hr | Gastrointestinal distress(3), severe nausea |

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Table 11, Gastrointestinal Syndrome, cont.

| Species & Location¹ | Number & Onset² | Symptoms¹ |
|---|---|--|
| <i>Phallus impudicus</i> CO, OK | 2 adult, 1 hr | Gastrointestinal distress, cramps, tachycardia |
| <i>Phallus ravenelii</i> WI | adult, 4 hrs | Gastrointestinal distress, severe headache |
| <i>Pholiota aurivella</i> OR | adult, 3 hrs | GI, chills, cramps, disorientation, muscle spasm |
| <i>P. kodiakensis</i> (AK) | 2 adult, 23 hrs | GI(2), cramps(2), disoriented(2), salivation, drowsy, sweat |
| <i>Pholiota squarrosa</i> AB, CO(2), MN, MT, WY | 12 adult 0.1-7.5 hr avg 4 hr | Gastrointestinal distress(7) + severe GI(2), fever(3), weak, flatulence |
| <i>Pleurotus ostreatus</i> CA, MI, OR(4), VT, WA | 8 adult+ 1 child 0.5-5 hr avg 2 hr | Gastrointestinal distress(7), disorientation, fever, nausea(2), salivation, drowsy(2), weak(2), dry mouth. One was a suicide attempt but wrong mushroom. |
| <i>Pleurotus</i> sp. MT | 2 adult, - | Both with gastrointestinal distress and cramps |
| <i>Pluteus</i> cf. <i>atromarginatus</i> MT | 2 adult, 1.5 hr | Gastrointestinal distress(2), severe cramps(2), fever |
| <i>Ramaria</i> cf. <i>aurea</i> CO | 2 adult, 8 hr | Gastrointestinal distress(2), cramps |
| <i>Ramaria</i> sp. WA | adult 4.5 hr | Gastrointestinal distress |
| <i>Ramariopsis</i> <i>lentofragilis</i> ME | adult, 9.5 hr | Muscle spasms, nausea, weak, sharp substernal pain |
| <i>Rhodocybe nitellina</i> CA | adult, 2 hr | Gastrointestinal distress |
| <i>Russula</i> cf. <i>claroflava</i> VA | adult+child 4 hr | Gastrointestinal distress |
| <i>Russula</i> cf. <i>emetica</i> CO, MT | 2 adult 6 & 18 hr | Gastrointestinal distress, nausea after smoking it in attempt to get high |
| <i>Russula nigricans</i> OR | child, 0.5 hr | Gastrointestinal distress, disoriented, convulsions |
| <i>R. occidentalis</i> WA | 2 adult, 4.5 hr | Gastrointestinal distress |
| <i>Russula paludosa</i> + <i>R. lutea</i> AB | 2 adult, 4 hr | Both with gastrointestinal distress |
| <i>Russula virescens</i> VA | adult, 8 hr | Gastrointestinal distress, chills, fever |
| <i>Russula xerampelina</i> CO | 2 adult, 3 hr | Gastrointestinal distress(2), severe chills(2), cramps, fever, hematemesis(2), leucocytosis, anuria |
| <i>Russula</i> spp CO(5), NC, NM | 12 adult+ child 0.3-6 hr avg 4 hr | Gastrointestinal distress(7) + bloody GI, chills(4), cramps(3), disoriented, nausea(2), mydriasis, salivation, sweating(2), tachycardia, weak(2), agitated, breathing dif. |
| <i>Scleroderma</i> cf. <i>cepa</i> CA(2), CO, OR(2), WA2 | 5 adult+ child 0.3-2 hr avg 1 hr | Gastrointestinal distress, sweating(2), disoriented(3), hypotension(2), malaise, drowsy, blurred vision |

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Table 11, Gastrointestinal Syndrome, cont.

| Species & Location¹ | Number & Onset² | Symptoms¹ |
|---|--|--|
| <i>Scleroderma citrinum</i> OR, PA | 5 Adult 0.8–4 hr avg 2 hr | Gastrointestinal distress(5) |
| <i>S. geaster</i> DC | Child, 9 hr | Gastrointestinal distress |
| <i>Scleroderma lycoperdoides</i> QC | 2 adult+ child 0.5–2 hr, avg 1 hr | Gastrointestinal distress, malaise, nausea, visual disturbance, fever, dry mouth, throat constricted |
| <i>Scleroderma</i> spp GA, OR(3) | 4 adult+ child 0.1–4.5 hr avg 1.7 | Gastrointestinal distress(5), chills(3), cramps(2), disoriented(3), mydriasis, drowsy(2), sweat(2), weak(2) |
| <i>Stropharia rugosoannulata</i> NJ | child, 9 hrs | Gastrointestinal distress |
| <i>Suillus albidus</i> CA | adult, 0.75 hr | Gastrointestinal distress |
| <i>Suillus brevipes</i> CO | 2 adult, 1.5 hrs | GI(2), chills, cramps, disoriented, weak, diplopia |
| <i>S. brunnescens</i> CA | adult, 1.1 hr | Nausea |
| <i>Suillus granulatus</i> CO | adult, 1.5 hr | Gastrointestinal distress, malaise, “head felt heavy” |
| <i>Suillus luteus</i> MT, NJ, NY(2) | 6 adult+ 2 child 0.5, 0.8 & 12 hr | Gastrointestinal distress(7), disoriented(3), malaise(3), weak(3) |
| <i>Suillus pictus</i> NC | adult, 1.5 hr | Gastrointestinal distress |
| <i>Suillus pungens</i> CA | adult, 12 hr | Anxiety, disoriented, dermatitis, hyperpnea, swollen face |
| <i>S. tomentosus</i> CO(2) | 2 adult, 4 & 6 hr | Gastrointestinal distress, chills, disoriented |
| <i>Tricholoma focale</i> OR, CA | 3 adult 0.5-2.5 hr avg 2 hr | Gastrointestinal distress(3), headache(2), malaise, weak |
| <i>T. magnivelare</i> WA(2) | 2 adult, 1 & 8 hr | Gastrointestinal distress, headache, dry mouth |
| <i>T. pardinum</i> ON, OR | 7 adult 2 & 3.5 hr | Gastrointestinal distress(7), chills |
| <i>T. pessundatum</i> CA | adult, 5.7 hrs | Gastrointestinal distress |
| <i>T. saponaceum</i> ID | 8 adult, 1 hr | Severe gastrointestinal distress(8) |
| <i>Tricholomopsis decora</i> ID | 2 adult 0.5 hr | Gastrointestinal distress, chills, flushing, hypotension, severe salivation, severe sweating, blurred vision |

1 Number in parentheses is number of times observed.

2 Number in parentheses is one report of unusually long or short onset not included in average.

Table 11, Gastrointestinal Syndrome, cont.

| Species & Location¹ | Number & Onset² | Symptoms¹ |
|---|---|---|
| <i>T. platyphyla</i> ME | 2 child, 2 hrs | Gastrointestinal distress |
| <i>Truncocolumella citrina</i> MI | adult, 0.5 hr | Gastrointestinal distress, chills, sweating, weak |
| <i>Tylophilus arborate</i> NJ | adult, 1 hr | Gastrointestinal distress |
| <i>Tylophilus eximius</i> ME, NY, QC | 12 adult+ child 2–3(12) hr avg 3 hr | Gastrointestinal distress(13), chills, cramps, sweating, weak |
| <i>Volvariella</i> spp NV, CO | 2 adult, 1.5 & 3 hr | Severe gastrointestinal distress, disoriented, sweating |
| <i>Xerula megalospora</i> NY | child, 0.3 hr | Gastrointestinal distress, pallid |

Table 12
Poisonings of Animals

| Species & Location¹ | Animal & Onset² | Symptoms¹ |
|---|---------------------------------------|--|
| <i>Agaricus</i> sp CO | Cat, - | Gastrointestinal distress, disoriented, foaming at mouth |
| <i>Amanita bisporigera</i> NC | Dog, - | Gastrointestinal distress, disoriented, anemic, hypoglycemic, EUTHANIZED |
| <i>Amanita muscaria</i> CO(3), OR | 6 Cats 0.3–2 hr avg 1 hr | Gastrointestinal distress(5), apparent hallucinations(2), agitated, muscle spasms, mydriasis, nausea, salivation, drowsy(2), weak, DEATH(1) in 1 hour |
| <i>Amanita muscaria</i> AK, CO(9), MI, MN, NY | 15 Dogs 0.8–6 hrs avg 2 hr | Gastrointestinal distress(6), apparent hallucinations(3), agitated, ataxic(6), chills, cramps, disoriented(6), flushing, malaise(3), muscle spasms(10), mydriasis(4), salivation(6), sweating, tachycardia, unconscious(3), weak(2), red staring eyes(2), panting, could not stand(2), (1) |
| <i>Amanita pantherina</i> CO(2), OR(2) | 4 Cats 4 hr (1 report) | Apparent hallucinations, agitated, convulsions, disoriented(3), muscle spasms(2), mydriasis, salivation, sweating, drowsy, unconscious and nearly unconscious, could not stand(2), fear, slow respiration |
| <i>Amanita pantherina</i> AR, BC(2), CO(38), MI, OR, WA | 44 Dogs 0.8–3 hrs avg 2 hrs | Gastrointestinal distress (8), apparent hallucinations (15), agitated(13), ataxic(20), confused(2), convulsions(9), cramps, disoriented(13), dyspnea(3), fever, malaise(4), muscle spasms(21), mydriasis(8), salivation(3), sleepy(7), biting(5), fearful(9), flatulence, panting(5), hypercalcemia, sound sensitive(3), DEATH(1), EUTHANIZED(2) |

1 Number in parentheses is number of times observed.

2 Number in parentheses is one report of unusually long or short onset not included in average.

Table 12, Poisonings of Animals, cont.

| Species & Location¹ | Number & Onset² | Symptoms¹ |
|---|---------------------------------------|---|
| <i>Amanita ocreata</i> CA | Dog, 8.5 | Gastrointestinal distress, jaundice, unconscious |
| <i>Amanita phalloides</i> CA(2) | 3 Dogs | Gastrointestinal distress, disoriented, muscle spasms, weak(3), nursing puppy and its mother DIED |
| <i>Amanita thiersii</i> CA(2) | 2 Dogs, - | GI(2), disoriented, liver damage, DEATH(1) |
| <i>Amanita</i> sp CO | Cat, - | GI, anxiety, agitated, bradycardia, hypothermia, DEATH |
| <i>Amanita</i> sp OH | Dog, - | Severe GI, liver damage, EUTHANIZED |
| <i>Chlorophyllum molybdites</i> TN, FL | 2 Dogs, - | Gastrointestinal distress + bloody GI, DEATH(1) |
| <i>Clitocybe dealbata</i> WA | Dog, - | GI, bradycardia, hypotension, salivation, miosis |
| <i>Conocybe</i> sp CO | Cat, - | GI, agitated, dyspnea, salivation, miosis |
| <i>Galerina</i> sp AB | Cat, 0.7 hr | GI, drowsy, anorexia |
| <i>Gymnopilus purpuratus</i> CO | Dog, - | Gastrointestinal distress, wobbly, staring |
| <i>Gymnopilus</i> sp CO | Dog, - | Disoriented, staggering |
| <i>Gyromitra</i> sp ID | Dog, - | Gastrointestinal distress |
| <i>Hebeloma</i> cf. <i>Crustulini-forme</i> WA(2) | 2 Dogs, - | Both with gastrointestinal distress and malaise |
| <i>Hypholoma fasciculare</i> CO | Dog, - | GI, bradycardia, malaise, staggering |
| <i>Inocybe fastigiata</i> OR | Dog, 0.5 | Gastrointestinal distress, salivation |
| <i>Inocybe geophylla</i> & <i>I. lilacina</i> OR(3) | 6 Dogs, - | Gastrointestinal distress(6), DEATH(3) |
| <i>Inocybe</i> spp CO, OR, VA | 3 Dogs 0.5 hr (1 report) | Gastrointestinal distress(2) + severe GI, cramps, salivation + severe salivation, hallucinations, gas, pin-point pupils |
| <i>Lepiota josserandii</i> UT | 2 Dog, - | GI, liver damage(2), malaise(2), nausea, salivation, weak(2), DEATH(1) |
| <i>Lepiota</i> sp WA | Dog, - | GI, salivation, sleepy, near death, 2 week recovery |
| <i>Marasmius oreades</i> CO, NV | 2 Dogs, - | Gastrointestinal distress, salivation, frothy, unsteady |
| <i>Melanoleuca melaleuca</i> OR | Dog, - | Gastrointestinal distress, salivation, convulsions |
| <i>Panaeolus foenisecii</i> CO(4), MI, WA | 6 Dogs 0.1-4 hr, avg 2.5 hr | GI(4), anxiety, ataxic, agitated(2), malaise, muscle spasms, hallucinations, salivation, sleepy, weak, foaming at mouth |
| <i>Paxillus involutus</i> OK | Dog, 0.5 hr | GI, salivation, weak, respiration depression |
| <i>Pisolithus tinctorus</i> CA | New Zealand Pig | GI, salivation, weak from 1 bite |
| <i>Pleurotus</i> sp CO | 2 Dogs, 2 hr | GI(2) from very old decaying mushrooms |
| <i>Psathyrella velutina</i> NY | Dog, 0.1 hr | Gastrointestinal distress, weak |
| <i>Psilocybe pelliculosa</i> OR | Dog, 0.5 hr | Hallucinations, disoriented |

1 Number in parentheses is number of times observed.

2 Number in parentheses is one report of unusually long or short onset not included in average.

Table 12, Poisonings of Animals, cont.

| Species & Location¹ | Number & Onset² | Symptoms¹ |
|--|---------------------------------------|--|
| <i>Ramaria pallida</i> CO | Dog, - | GI, salivation, dry heaves |
| <i>Russula rosacea</i> NC | 2 Dogs, - | Both with bloody GI |
| <i>Russula spp.</i> CO(2), MT | 3 Dogs, - | GI(3), malaise, increased phosphate levels |
| <i>Scleroderma cf. Cepa</i> CO, NJ | 3 Dogs 0.2-6 hr avg 3 hr | Gastrointestinal distress (2), weak |
| <i>Scleroderma citrinum</i> CA | Pot-bellied Pig | Consumed one specimen and DIED several hours later |
| <i>Scleroderma spp.</i> CA(2), OR | 3 Dogs 0.1 hr) (1 report) | GI, liver damage(2), DEATH(2) |
| <i>Suillus cf. Luteus</i> WA | Dog, - | Gastrointestinal distress |
| <i>Tricholoma pardinum</i> + <i>Paxillus atrotomentosus</i> OR | Cat, 0.5 hr | Convulsions and DEATH |
| "Puffball" MT | Dog, 0.5 hr | Gastrointestinal distress |

1 Number in parentheses is number of times observed.

2 Number in parentheses is one report of unusually long or short onset not included in average.

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