

# Truffles mushrooms mycorrhizas

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## More on Poisonous Mushrooms

### **Changing attitudes**

In New Zealand foraging for food, and in particular picking wild mushrooms, is not common perhaps because some well-meaning, ancient family member told us that all mushrooms are toxic and just touching them is likely to smite you. So, not surprisingly, deaths from eating wild mushrooms are rare. But attitudes are changing just as they have in the [UK](#), but unfortunately enthusiasm, financial hardship, or alcohol can cloud judgement.

### **Mistaken identity**

A significant problem is accurately identifying a mushroom before eating it. For example, poisonous [Scleroderma](#) have been mistaken for white truffles (<http://www.trufamania.com/false-truffles.htm>), the immature egg stage of poisonous *Amanita* have been mistaken for straw mushrooms ([Volvariella](#)), and poisonous little brown mushrooms (lbms) have been mistaken by some looking for a cheap [hallucinogenic](#) experience.

Many species of *Entoloma* are not easy to identify to the species level. This is very important because many species of *Entoloma* are known to be poisonous, for example *Entoloma lividum* (= *Entoloma sinuatum*, *Rhodophyllus sinuatus*) while *Entoloma salmoneum* is reported as being poisonous to [some](#) people. So it is best to simply avoid eating species of *Entoloma* (Rumack & Spoerke 1994).

A good, or rather very bad, example of an unknown poisonous mushroom is *Trogia venenata*, the “little white mushroom” or “midsummer nightmare”. This hit the headlines some years ago when it was found that its mistaken identity and consumption had resulted in hundreds of deaths in country districts of Yunnan, China ([Shi et al 2012](#); [Stone 2010](#)). An extensive advertising campaign by the authorities has since stemmed further mass poisonings. The little white mushroom is just one of about 200 species of poisonous mushrooms in China (Chen et al. 2012; Li et al. 2003) – far more than the number of poisonous mushrooms known to occur in New Zealand.

### **What poisonous mushrooms are in New Zealand?**

We simply do not know all of the poisonous mushrooms that are present in New Zealand. It is likely that the majority of New Zealand native mushrooms in our beech forests have never been eaten. Another possibility is that poisonous mushroom imports may be here but have not yet come to the attention of mushroom specialists. For example, if you were to look at Landcare's fungal [database](#) you might be forgiven for thinking that the death cap mushroom (*Amanita phalloides*) is only found in Auckland and the Waikato. In reality it is very common at Eastwood Hills arboretum near Gisborne and in favourable years carpets of this mushroom can be found around the carpark. Unconfirmed reports also suggest that the death cap has crossed Cook Strait and is in the Nelson area. So it would be very foolish indeed to eat a white mushroom with white spores collected from under oak trees in the South Island simply on the basis that the death cap is not supposed to be present.

Some mushroom genera that are in New Zealand, that contain toxic species overseas, but do not appear in our posters are in the table below. The hyperlinks in the parentheses are species known to be toxic.

<a href="#"><u>Armillaria</u></a> (e.g. <a href="#"><u>mellea</u></a> )	<a href="#"><u>Boletus</u></a> (e.g. <a href="#"><u>satanas</u></a> )
<a href="#"><u>Coprinopsis</u></a> (e.g. <a href="#"><u>atramentaria</u></a> )	<a href="#"><u>Entoloma</u></a> (e.g. <a href="#"><u>lividum</u></a> )
<a href="#"><u>Galerina</u></a> (e.g. <a href="#"><u>sulciceps</u></a> )	<a href="#"><u>Gyromitra</u></a> (e.g. <a href="#"><u>esculenta</u></a> )
<a href="#"><u>Hygrocybe</u></a> (e.g. <a href="#"><u>crustuliniforme</u></a> )	<a href="#"><u>Inocybe</u></a> (e.g. <a href="#"><u>erubescens</u></a> = <a href="#"><u>patouillardii</u></a> )
<a href="#"><u>Lactarius</u></a> (e.g. <a href="#"><u>helvus</u></a> )	<a href="#"><u>Lyophyllum</u></a> (e.g. <a href="#"><u>connatum</u></a> )
<a href="#"><u>Omphalotus</u></a> (e.g. <a href="#"><u>olearius</u></a> )	<a href="#"><u>Ramaria</u></a> (e.g. <a href="#"><u>formosa</u></a> )
<a href="#"><u>Russula</u></a> (e.g. <a href="#"><u>emetica</u></a> )	<a href="#"><u>Tricholoma</u></a> (e.g. <a href="#"><u>pardinum</u></a> )

### **Once edible, now poisonous**

Some species, which were once considered edible, are now labelled "avoid" or "toxic". [Clitocybe nebularis](#), the brown roll rim (*Paxillus involutus*) and [Tricholoma terreum](#) are examples. *Paxillus involutus* was once regarded as edible and is still consumed in China. However, it is now known to trigger an autoimmune response after consumption of the mushroom over many years when mushroom antigens attached to red blood cells trigger a massive immune response. This results in "haemolysis .... resulting in reduced urine output, haemoglobin in the urine or outright absence of urine formation, and anaemia.... Haemolysis may lead to numerous complications including acute renal failure, shock, acute respiratory failure, and disseminated intravascular coagulation. These complications can cause significant morbidity with fatalities having been [reported](#)".

### **Sources of information**

In Europe people can get help from pharmacists or professional mushroom inspectors whereas in New Zealand specialists are few and far between. It was because of this we prepared the posters and pamphlet on our web pages ([Truffles and Mushrooms Ltd](#); [National Poisons Centre](#) and the main reason for writing "[Edible and poisonous mushrooms of the world](#)". In the posters we illustrate about 20 mushrooms found in New Zealand that are known to cause serious or even fatal poisoning if eaten.

Additional information can be found in a host of books that litter the shelves of libraries around the world. A simple search on the web can also yield a wealth of information. Entering "[mushroom white spores volva](#)" into Google images or the [web](#) quickly leads to the death cap, and "[small brown mushroom](#)" will bring up so many species, some toxic, that should be enough for anyone to risk eating one.

### **Some other references**

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- Li, T.; Yang, Z.; Chen, Z.; Song, B.; Deng, W. 2003. Poisonous mushrooms known from China - species resources and distribution. Fifth International conference on mushroom biology and mushroom products. International journal of medicinal mushrooms 11. DOI: 10.1615/IntJMedMushr.v11.i3.80
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- Stone, R. 2010. Will a Midsummer's Nightmare Return? Science 329 (5988): 132-134. DOI: 10.1126/science.329.5988.132  
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