



## Pacific Pests, Pathogens & Weeds - Fact Sheets

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### Paddy straw mushroom (433)



Photo 1. Button stage of the paddy straw mushroom, *Volvariella volvacea*, showing many still enclosed in the veil, and others where the veil has broken.



Photo 2. Young paddy straw mushroom, *Volvariella volvacea*, showing the broken veil on top of the cap and at the bottom of the stem. Note the radiating hairs of the cap.



Photo 3. Paddy straw mushrooms, *Volvariella volvacea*, at Honiara market, Solomon Islands. Note the dark centre to the cap, the variation in colour between caps, from silvery-white to brownish-grey, and the radiating striations.



Photo 4. Paddy straw mushroom, *Volvariella volvacea*, showing the lack of a ring on the stem or stipe. Compare with the death cap (Photo 5).



Photo 5. Death cap, *Amanita phalloides*, clearly showing the ring on the stem. This mushroom is deadly poisonous.

#### Common Name

Paddy straw mushroom, straw mushroom, Chinese mushroom.

## Scientific Name

*Volvariella volvacea*

## Distribution

Widespread. It is cultivated widely in East and Southeast Asia, and introduced in many other regions, including Africa, North America and Australia. It is recorded from Solomon Islands.

## Use & Appearance

The paddy straw mushroom is grown on rice straw beds and picked immature, during the button or egg phase and before the veil ruptures (Photo 1). It is found in woodchips, rich garden soil, compost piles and, in the Pacific, on decaying trunks of fallen sago palm and empty fruit bunches of oil palm. They are often available fresh in Asia, but are more frequently found canned or dried in countries where they are not cultivated.

Methods of cultivation are here: <http://www.fao.org/3/ca4450en/ca4450en.pdf>.

Young stages are formed under a greyish-brown veil ('universal veil'), which surrounds the mushroom at the 'button stage' (Photo 2). It breaks to allow the stem and cap to expand leaving a dark brown cup-shaped structure (the 'volva') at the base (Photo 2).

The cap is 5-12 cm diameter, first ovoid, then cone-like and finally broadly convex or bell-shaped, dark grey in the centre, becoming silvery-white or brownish-grey towards the margins, radially streaked with soft hairs (Photo 3). The cap tends to split at the edges. Gills are free from the stem, white then pinkish, and finally brownish-pink. Stem 6-12 cm, whitish or brown.

## Caution!

In the button stage, the paddy straw mushroom is like the highly poisonous death cap *Amanita phalloides*, which contains alpha-amantin. If the death cap is eaten by human beings it results in liver and kidney failure. The toxin is not destroyed by cooking, and eating half a mushroom is sufficient to kill an adult.

The paddy straw mushroom can be distinguished from the death cap by its pink spore print (that of the death cap is white), and the lack of a ring on the stem (stipe) (Photo 4) - a white membranous ring is present on the death cap (Photo 5). The two mushrooms have different distributions, with the death cap generally not found where the straw mushroom grows natively, but introductions have occurred, e.g., Australia and North America, where the death cap grows as an ectomycorrhiza fungus on the roots of introduced forest species, e.g., oak, chestnut and pine.

However, the two cannot be distinguished in the button stage, and that is when people consider the paddy straw mushroom is best for consumption.

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Information from Pacioni G (1993) The MacDonal Encyclopedia of mushrooms and toadstools. Little, Brown and Company (UK) Limited. London; and *Volvariella volvacea*. Wikipedia. ([https://en.wikipedia.org/wiki/Volvariella\\_volvacea](https://en.wikipedia.org/wiki/Volvariella_volvacea)); and *Amanita phalloides*. Wikipedia. ([https://en.wikipedia.org/wiki/Amanita\\_phalloides](https://en.wikipedia.org/wiki/Amanita_phalloides)); and Kuo M (2018) *Volvariella volvacea*. Mushroom Expert.Com. ([http://www.mushroomexpert.com/volvariella\\_volvacea.html](http://www.mushroomexpert.com/volvariella_volvacea.html)); and *Amanita phalloides* (2020) Wikipedia. ([https://en.wikipedia.org/wiki/Amanita\\_phalloides](https://en.wikipedia.org/wiki/Amanita_phalloides)) and from FAO (2017) Straw mushroom (*Volvariella volvacea*) cultivation for livelihood diversification in Laos. Food and Agriculture Organization of the United Nations. (<http://www.fao.org/3/ca4450en/ca4450en.pdf>). Photo 1 Chong Fat (<https://commons.wikimedia.org/wiki/File:StrawMushroom.jpg>). Photo 4 Len Worthington *Volvariella volvacea* (Bd.) Singer (1951). (<https://www.flickr.com/photos/lenmyworthington/16265718515/>). Photo 5 Archenzo. *Amanita phalloides*. Piacenza's mountains ([https://en.wikipedia.org/wiki/Amanita\\_phalloides](https://en.wikipedia.org/wiki/Amanita_phalloides)).

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