



# Guidelines for handling of mushrooms

## Reduction of radioactive cesium

Radioactive substances, such as cesium-137 ( $^{137}\text{Cs}$ ) that are currently found in foodstuffs mainly originate from the Chernobyl nuclear power plant accident in 1986. In some parts of Finland many commercial mushrooms contain cesium-137 in excess of the maximum limit defined in EU's recommendation. The content of cesium-137 also varies by the species of mushrooms.

Radioactive cesium can be removed by soaking or boiling the mushrooms in water. Most of the cesium is transferred into the water, which is then disposed of. This process can remove up to 70-90% of cesium.

According to the European Commission recommendation (2003/274/Euratom), the radioactive cesium content of natural products sold in the member countries may not exceed 600 Bq/kg. The recommendation requires that population be informed of this in regions where the maximum limits set out in the recommendation can be exceeded.

### \* Becquerel (Bq)

The unit of radioactivity.

The content of radioactive substances in foodstuffs, for example, is expressed in becquerel per unit of weight or volume. Bq/kg or Bq/l. 1 Bq = decay of one nucleus in one second.

### Guidelines for handling of mushrooms to reduce levels of cesium-137

Boiling of fresh or salted mushrooms *Lactarius spp* are boiled in abundant water (1 part mushrooms to 3 parts water) for ca. 10 minutes, and false morels are boiled twice, for five minutes each time. The cooking water is disposed of. The mushrooms are then rinsed in plenty of cold water. The same process can be used for also other mushrooms to reduce the cesium level.

### Heating in own liquid

Mushrooms that are normally not boiled can be heated in a pan to release the mushrooms' own liquid, which is then disposed of. The process can be made more efficient by rinsing the mushrooms in a small amount of water.

### Freezing

The mushrooms are simmered in a pan and left slightly moist before freezing. The liquid released from the thawing mushrooms is pressed out.

### Soaking

Dried mushrooms are soaked in cold water for at least one hour, or overnight (10 grams of mushrooms and at least 2 dl of water). Fresh mushrooms are soaked in cold water overnight (100 grams of mushrooms and 5 dl of water). The soaking water is disposed of.

*Russula paludosa*



*Rozites caperatus*



*Craterellus cornucopioides*



## Cesium-137 contents in mushrooms by species

### Low cesium level

*Cantharellus cibarius*, *Boletus spp*, *Leccinum Spp*, *Albatrellus ovinus*, *Suillus luteus*, *Armillaria spp*, *Morchella spp*, *Gyromitra esculenta* and *Tricholoma matsutake*

- level of cesium in excess of 600 Bq/kg only on a random basis

### Medium level of cesium

*Russula spp*, *Cantharellus tubaeformis*, *Cantharellus lutescens*, and *Craterellus cornucopioides*

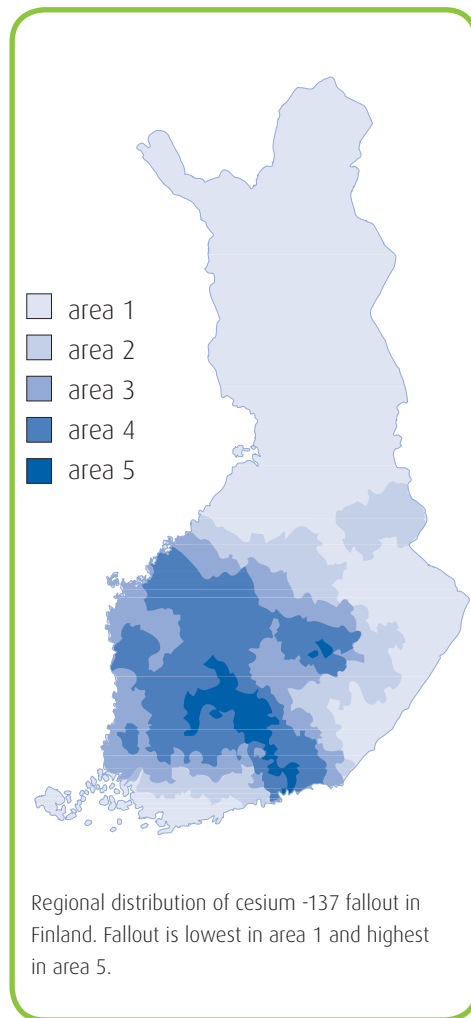
- level of cesium in excess of 600 Bq/kg is common in fallout areas 3-5

### High level of cesium

*Lactarius spp*, *Hydnum spp*, *Suillus variegatus*, *Rozites caperatus* and *Hygrophorus camarophyllus*

- level of cesium commonly in excess of 600 Bq/kg even in areas of minor fallout (areas 1-2)

More detailed maps of the fallout areas are available on the web site of the Finnish Radiation and Nuclear Safety Authority



*Russula paludosa*



*Rozites caperatus*



More information available at: [www.stuk.fi](http://www.stuk.fi), [www.evira.fi](http://www.evira.fi)

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