

Removal of Radioactive Cesium through Cooking and Processing of Foods

Radioactive materials can be reduced through cooking.

Item	Cooking/Processing methods	Removal rate (%)
Rice	Polishing - Washing - Cooking	66~72
Leaf vegetables (spinach, etc.)	Washing - Boiling	7~78
Bamboo shoots	Boiling	26~36
Marron	Boiling - Peeling astringent skin	11~34
Japanese radish	Peeling	24~46
Japanese plum	Salting	34~43
Cherry leaves	Salting	78~87
Dried <i>shiitake</i> mushrooms	Reconstituting (do not use soaking water)	51~54
Beef meat	Boiling sliced meat (<i>Shabu-shabu</i>)	55~69
Fish	Cooked lake smelt soaked in Japanese sweet and peppery vegetable sauce	22~32

- Avoid eating wild foods too much.

$$\text{Removal rate (\%)} = \left(1 - \frac{\text{Total amount of radioactivity in cooked or processed foods (Bq)}}{\text{Total amount of radioactivity in raw materials (Bq)}} \right) \times 100$$

Source: "Environmental Parameters Series Expanded Edition (2013): Radionuclide Removal Rates through Cooking and Processing of Foods - Centered on Data on Radioactive Cs Removal Rates in Japan -" (September 2013), Radioactive Waste Management Funding and Research Center

Immediately after the accident at Tokyo Electric Power Company (TEPCO)'s Fukushima Daiichi NPS, radioactive materials detected from vegetables were only attached to the surface thereof, and such radioactive materials could be washed off to some extent.

At present, radioactive materials are seldom attached to the surface of vegetables, but some radioactive materials in soil may be taken into vegetables through their roots. However, radioactive cesium adsorbed into vegetables from the roots can be removed through cooking or processing with some ingenuity.

The table above shows removal rates of radioactive cesium in foods.

When boiling vegetables, the longer the boiling time is, the larger the removal rate is. This is considered to be because radioactive cesium in vegetable cells breaks and comes out into the boiling water. Also in the case of salted vegetables, the longer the salting time is, the larger the removal rate is. This is considered to be because radioactive cesium in vegetables is replaced with sodium in salt.

When cooking meat or fish, the amount of radioactive materials can be halved by discarding the cooking liquid. It is known that the removal rate is higher when boiling or cooking than grilling them.

Refer to the webpage (<http://www.rwmc.or.jp/library/other/kankyo/>, in Japanese) for the details of the related data.

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