



## Natural toxins in vegetables and beans

Some plant foods that we eat, including vegetables and beans, contain natural toxins which are potentially harmful. Find out the risks and how you can limit your exposure.

### Protect yourself from natural plant toxins

Toxins can be in plant-based foods for several reasons. In some plants, a toxin may function as a naturally occurring pesticide to ward off insect attack. Toxins may protect the plant from spoiling when damaged by weather, handling, ultra-violet (UV) light, or microbes.

Whether you have an adverse reaction to a toxin depends on your own sensitivity and the strength of the toxin.

### Guide to preparing plant foods safely

Our guide lists some common foods that may contain natural toxins and what you can do to limit your exposure.

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#### Guide for safe plant food preparation

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Vegetable	Suggested preparations
Potatoes	<ul style="list-style-type: none"> <li>Remove green or damaged parts before cooking.</li> <li>Do not eat potato sprouts.</li> <li>Cooking does not destroy the toxins.</li> <li>Do not eat if it tastes bitter after cooking.</li> </ul>
Kumara	<ul style="list-style-type: none"> <li>Remove damaged parts before cooking.</li> <li>Do not eat if it tastes bitter after cooking.</li> </ul>
Parsnip	<ul style="list-style-type: none"> <li>Peel before cooking and remove damaged parts.</li> </ul>

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## Guide for safe plant food preparation

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- Do not cook them at a low temperature (for instance, in a slow cooker) as poorly-cooked beans can be more toxic than raw ones.
  - Tinned beans are safe to use without further cooking.
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Rhubarb

- Do not eat the leaves as this is where the toxin is most concentrated.

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Zucchini (courgette)

- Do not eat if it has a strong unpleasant smell or tastes bitter.

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Cassava

- Peel and slice before cooking thoroughly, by baking, boiling, or roasting. Do the same thing if the cassava has been frozen.

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Bamboo shoots

- Slice in half lengthwise, peel outer leaves away, and cut off fibrous tissue at the base.
- Thinly slice the fresh shoots and boil in lightly salted water for 8 to 10 minutes.

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## Causes and risks of plant food toxins

### Potatoes

All potatoes contain natural toxins called solanines (which are glycoalkaloid poisons). These are generally found in low levels. Higher concentrations can be in potato sprouts and bitter-tasting peel. The plants produce the toxins in response to stresses like bruising, UV light, and microorganisms, and attack from insect pests and herbivores.

It's unusual to have a bad reaction. There have been reports overseas of severe stomach ache and even death from solanine poisoning.

If you come across a bitter tasting or green potato or potato chip, it's best not to eat it. Remember to store potatoes in a dark, cool, and dry place.

### Kumara

Kumara is a member of the sweet potato family. It can produce the common toxin, ipomeamarone, can make the kumara taste bitter. [https://www.mpi.govt.nz/ab...]  
kumara.

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Parsnips often contain a group of natural toxins called furocoumarins. These are probably produced to protect the plant when it has been stressed. The toxin is mostly found in the peel and the surface layer of the plant, as well as around any damaged areas.

One of the toxins can cause stomach ache. It may cause a painful skin reaction when contact with the plant is combined with UV rays from the sun.

## Kidney beans

Many types of beans contain toxins called lectins. Kidney beans have the highest concentrations – especially red kidney beans. As few as 4 or 5 raw beans can cause severe stomach ache, vomiting, and diarrhoea.

## Rhubarb

Rhubarb leaves contain oxalic acid. Poisoning can cause muscle twitching, cramps, decreased breathing and heart action, vomiting, pain, headache, convulsions, and coma.

## Zucchini (courgette)

Occasionally, zucchini contains a group of natural fungicide toxins called cucurbitacins. The zucchini plant produces these toxins in response to attack by fungi. This gives the vegetable a bitter taste. It is more common in wild zucchini and rare in commercially-grown types.

Eating bitter zucchini can cause vomiting, stomach cramps, diarrhoea, and collapse.

## Cassava and bamboo shoots

Raw or unprocessed cassava and bamboo shoots have natural toxins called cyanogenic glycosides. These can expose you to hydrogen cyanide.

Cassava is also called yucca, tapioca, gapek, or manioc.

Bamboo shoots come from the underground stems of the bamboo plant.

## Who to contact

If you have questions about natural toxins in plant foods, email [in](#)

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