



# DIY preservation

Do-it-yourself is in fashion – also when it comes to food. What needs to be considered when harvesting from your own garden and canning fruits and vegetables at home?



Currant jam, kale crisps or pumpkin chutney – preserving fruit and vegetables is in demand. Preservation methods such as boiling water-bath canning, drying, and pickling not only help preserve perishable food, they also offer a great range of tasty recipes. From sweet to savoury to sour, there's something to suit every palate. However, it is important to follow certain rules so that culinary enjoyment does not end up leading to stomach ache or even a trip to the hospital.

## FRESH AND CLEAN

As a basic rule, you should never use any fruit or vegetables that are overly ripe, mouldy, or spoilt in any other way. It is also important to wash them thoroughly, as pathogens can be transmitted to food during planting, harvesting, or transport. This also applies to freshly harvested (organic) products from one's own garden, a field, or a forest. Similarly, when preparing food, hands, surfaces, and utensils should be thoroughly cleaned, and only clean containers should be used for preservation. The safest method to remove possible germs from containers is to wash with boi-

ling water or at the highest possible temperature in the dishwasher.

### PRESERVING BY BOILING

Boiling water-bath canning preserves fruit and vegetables through the use of heat and air-tight sealing in a container. However, the used food may be contaminated with pathogenic bacteria. Most of these bacteria are killed by heating food to a core temperature of over 70°C for at least two minutes. However, some types of bacteria are able to develop highly resistant forms, known as spores. When it comes to preserving food via heat, the spores of the bacterium *Clostridium botulinum* may pose health risks, as they are only inactivated at temperatures of above 100°C and the bacteria are able to multiply in the preserved food. If the spores survive the canning process, they can develop into the bacterial stage during storage and, while multiplying, form neurotoxins that can trigger botulism [see box].

### PICKLING IN VINEGAR OR OIL

Vinegar can help prevent the growth of microorganisms. However, you should not rely on vinegar alone, as high acidity is required to kill pathogenic

## BOTULISM: RARE AND PREVENTABLE

*Botulism is a very serious illness that is caused by neurotoxins from the bacteria *Clostridium botulinum*. Only a handful of human botulism cases are registered in Germany each year. The neurotoxins can lead to nausea, blurred vision, trouble speaking or swallowing, and even death. How can you protect yourself from it? How can you recognise whether *Clostridium botulinum* has multiplied in canned food?*

#### More information



BfR-FAQ  
"Botulism"



bacteria. Such acidity levels, however, are very unpleasant to human taste. Tip: combine vinegar with other preservation methods, such as boiling water-bath canning, or adding sugar or salt.

Pickling in oil is not a suitable method for home-made preserving. Self-made oils and vegetables or herbs in oil should not be prepared in large quantities and then stored. This is particularly the case if food is not sufficiently heated before it is consumed, but is rather intended as part of the preparation for salads or other raw dishes.

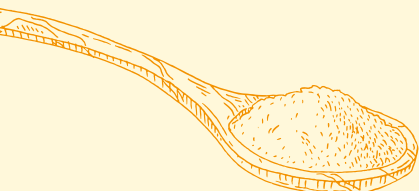
### FREEZING AND DRYING

Freezing is a good method, for example to preserve whole berries for muesli or smoothies. It is important to wash the food thoroughly in advance, and freeze only in clean and tightly sealed containers or freezer bags. It is also worth freezing the food in small portions, so that it cools as quickly as possible and does not cause neighbouring frozen products to thaw.

People who enjoy snacks such as desiccated fruit, vegetable crisps or dried tomatoes should ensure that the water content in the selected fruit and vegetables is rapidly and strongly reduced during the drying process. Also, the dried food should ideally be stored in a dry place, as moisture can lead to mould growth and food spoiling.



**TIP:**  
**COMBINE PRESERVATION IN VINEGAR WITH OTHER METHODS SUCH AS BOILING WATER-BATH CANNING OR ADDING SALT OR SUGAR.**



### STOCKING UP ON LEGUMES

The preparation of beans, chickpeas or lentils is often time-consuming due to long soaking and cooking times. This can be avoided by pre-cooking and subsequent canning or freezing in portions. However, it is important to heat legumes sufficiently and cook them long enough. For example, the seeds and pods of garden beans contain phasin, a lectin protein. Just a few raw seeds are enough to cause stomach ache and nausea. In severe cases, it can even lead to bloody diarrhoea, fever, and low blood pressure. The good news is that heat destroys lectins.

As a rule of thumb, you should cook fresh legumes for at least 30 minutes. Dried legumes such as chickpeas, kidney beans, and lentils should be soaked for at least five hours. The water used for soaking should be discarded before cooking the legumes in fresh water. Less intensive cooking methods such as gentle stewing or steaming are not appropriate for most legumes. —

#### More information



BfR press release  
**"Sick because of lectins in vegetables?"**  
*(in German)*