

Food drying

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Food drying is a method of food preservation in which food is dried (dehydrated or desiccated). Drying inhibits the growth of bacteria, yeasts, and mold through the removal of water. Dehydration has been used widely for this purpose since ancient times; the earliest known practice is 12,000 B.C. by inhabitants of the modern Middle East and Asia regions.^[2] **Water** is traditionally removed through evaporation (air drying, sun drying, smoking or wind drying), although today electric food dehydrators or freeze-drying can be used to speed the drying process and ensure more consistent results.

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Food types

Many different foods can be prepared by dehydration. Meat has held an historically significant role. For centuries, much of the European diet depended on dried cod—known as salt cod, bacalhau (with salt), or stockfish (without). It formed the main protein source for the slaves on the West Indian plantations, and was a major economic force within the triangular trade. Dried shark meat, known as Hákarl, is a delicacy in Iceland, while dried reindeer meat is a traditional Sami food. Currently popular dried meats include prosciutto (a.k.a. Parma ham), bresaola, and beef jerky.

Dried fruits have been consumed historically due to their high sugar content and sweet taste, and a longer shelf-life from drying.^[3] Fruits are often observed differently when dried. The plum becomes a prune, the grape a raisin. Figs and dates are also transformed into new, different products that can either be eaten as they are, used in recipes, or rehydrated.



Flattened fish drying in the sun in Madagascar. Fish are preserved through such traditional methods as drying, smoking and salting.^[1]



A whole potato, sliced pieces (right), and dried sliced pieces (left)



1890 newspaper advertisement showing tin of dried coconut

Freeze-dried vegetables are often found in food for backpackers, hunters, and the military. Garlic and onion are often dried. Edible mushrooms, as well as other fungi, are also sometimes dried for preservation purposes or to be used as seasonings.

Preparation

Home drying of vegetables, fruit and meat can be carried out with electrical dehydrators (household appliance) or by sun-drying or by wind.^[4] Preservatives such as potassium metabisulfite, BHA, or BHT may be used, but are not required. However, dried products without these preservatives may require refrigeration or freezing to ensure safe storage for a long time.

Industrial food dehydration is often accomplished by freeze-drying. In this case food is flash frozen and put into a reduced-pressure system which causes the water to sublime directly from the solid to the gaseous phase. Although freeze-drying is more expensive than traditional dehydration techniques, it also mitigates the change in flavor, texture, and nutritional value. In addition, another widely used industrial method of drying of food is convective hot air drying. Industrial hot air dryers are simple and easy to design, construct and maintain. More so, it is very affordable and has been reported to retain most of the nutritional properties of food if dry using appropriate drying conditions.^[5]

Other methods

There are many different methods for drying,^[6] each with their own advantages for particular applications; these include:

- Convection drying
- Bed dryers
- Drum drying
- Freeze Drying
- Microwave-vacuum drying^[6]
- Shelf dryers
- Spray drying
- Infrared radiation drying^[6]
- Sunlight
- Commercial food dehydrators
- Household oven

See also

- Bouillon cube
- Curing
- Dried fruit
- Instant noodles
- Instant soup
- List of dried foods
- List of smoked foods
- List of foods
- Meat extract



A collection of dried mushrooms



Sun-drying octopus



This electric food dehydrator has a hot air blower that blows air through trays with foods on them. Pictured are mango and papaya slices being dried.

References

1. Grandidier (1899), p. 521
2. "Historical Origins of Food Preservation". (http://www.uga.edu/nchfp/publications/nchfp/factsheets/food_pres_hist.html) Accessed June 2011.
3. Trager, James (1997). *The Food Chronology: A Food Lover's Compendium of Events and Anecdotes from Prehistory to the Present*. Henry Holt. ISBN 080505247X.
4. "Food Dehydrator reviews". www.dehydratorjudge.com. Retrieved 19 April 2016.
5. "Modeling the thin-layer drying of fruits and vegetables: A review". Wiley-Blackwell. 2016-02-04. Retrieved 2016-02-08.
6. Si X, Chen Q, Bi J, Wu X, Yi J, Zhou L, Li Z (2016). "Comparison of different drying methods on the physical properties, bioactive compounds and antioxidant activity of raspberry powders". *J Sci Food Agric.* **96** (6): 2055–62. doi:10.1002/jsfa.7317. PMID 26108354.

External links

- National Center for Home Food Preservation, drying section (<http://nchfp.uga.edu/how/dry.html>)



Wikimedia Commons has media related to ***Dried food***.

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