FOOD DESHYDRATATION and DRYING

Eramus+ Project « conservation of food » 2018-2020

HISTORY

Drying is a ancient conservation technique by dehydration or desiccation dating back to at least 12,000 BC in Asia and the Middle East. It stops the progression of bacteria, yeasts and molds by reducing the amount of free water.

LYOPHILIZATION

Lyophilization consists in removing the water from a liquid, pasty or solid product, using freezing and vacuum evaporation of the ice without melting it. Water is heated in the solid state at very low pressure and sublimes. This technique preserves both the volume, the appearance and the properties.
It can occur naturally (drying in the mountains), or, more quickly, in a freeze-dryer.
Most freeze-dried foods rehydrate very quickly thanks to their porous texture.
In fact, freeze-drying does not lead to a significant decrease in volume, so water can easily take its place in the molecular structure of the food.
Lyophilization still has some disadvantages. The products obtained have lost their color, they are very friable and very sensitive to oxidation, not to mention their high cost.

Freeze-dried coffee and fruits

This technique was invented by the French A. d'Arsonval and F. Bordas in 1906.

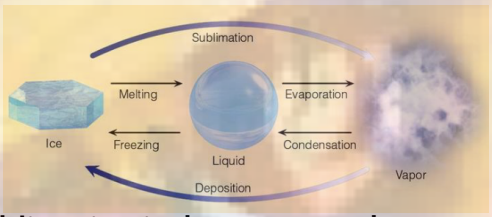
TECHNIQUES

Evaporation by wind, sun or heat is the traditional way.
Modern techniques like freeze-drying are used to speed up the process.

Deshydrator

Freeze-drier

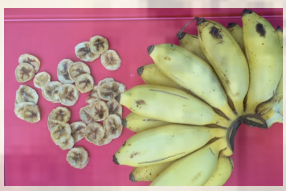
EXPERIMENTATION



Sublimation is the process where a solide changes phase and turn directly into gas without passing through a liquide phase

PRODUCT

Dried fruits and leaves by evaporation with the sun (Pineapple, lemon, apple, big-thymus, citronella)



Slovakian Meeting 2019 march 25-29

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