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PASTEURIZING DRIED FOOD

There is always a possibility that insect larvae or harmful spoilage organisms may be present on the surface of dried fruits and vegetables. It is wise to prevent potential problems by pasteurizing the food, using one of the following methods.

Freezer: Package the dried product in plastic freezer bags and store in the freezer a minimum of 48 hours. Remove and package for permanent storage.

Oven: Layer dried food loosely in roasting pans and heat in a 175°F oven for 15 minutes or at 160°F for 30 minutes. Remove and cool the product. Package for permanent storage.
PRE-DRYING FRUIT TREATMENT

Sort and discard defective fruits. Wash, pit and halve. When necessary (as with stone fruits). Most fruit must be pretreated immediately before drying to maintain an appetizing appearance--and to prevent darkening, loss of flavor and Vitamin C. Pretreat fruit by dipping it in a sulfite, ascorbic acid or salt water solution, by syrup blanching or by exposing the fruit to sulfur fumes. The sulfur treatment is preferred as a pre-drying treatment. Sulfuring fruit (exposing it to sulfur fumes) effectively preserves color maintains the quality and decreases loss of vitamins A and C in the fruit during drying and storage.

TIMING DRYING FOODS

Temperature plays a key role in the drying process. If the temperature is too high, food may case harden; that is cook and harden on the outside while trapping moisture on the inside. Other variables to consider when timing foods in a dehydrator include: the amount of natural water in the food, the size and thickness of the food, the relative humidity of the air and the efficiency of the dehydrator. Vegetables may take as little as 3 to 4 hours or up to about 14 hours to dry, depending on the above variables. For example, sliced mushrooms will probably dry in an average of 4 hours, while beets may take as long as 12 to 14 hours to dry.
WHEN IS FOOD DRY?

Judging when food is dry requires experience. Check food to be sure enough moisture has been removed to make it impossible for mold and bacteria to grow and cause decay. It is better to overdry than to underdry. When in doubt, continue drying for additional time. Dehydrator drying generally takes less time than oven drying. Allow the product to cool before testing.

VEGETABLES
Vegetables are sufficiently dried when they are hard and brittle or tough and leathery, depending on the vegetable. Edges will be sharp. Beans, corn and peas are hard and will shatter when hit with a hammer. Leafy thin vegetables should be brittle. Larger chunks or slices of vegetables should be leather.

FRUITS
Fruits are adequately dried when moisture cannot be squeezed from them. Most fruits will feel leathery and pliable when properly dried.

FRUIT LEATHERS
Fruit leathers may be slightly sticky to the touch but separate easily from the plastic wrap. For long-term storage, dry leathers until they are no longer sticky.

HERBS
Herbs are brittle when dried. Leaves shatter when rubbed together.

MEATS
Meats and all protein foods should be VERY dry unless refrigerated or frozen for long-term storage. Meat is sufficiently dried when it is dark in color and fibrous.

SUN DRYING
Michigan weather does not lend itself to drying fruits and vegetables in the sun. Spoilage--souring or molding--will probably occur before drying is achieved. Sun drying requires temperatures over 98 degrees Fahrenheit and low relative humidity such as conditions found in the Southwestern United States. For example, in Phoenix, Arizona, the average maximum temperature in August is 102°F, the humidity bottoms out at 24 percent, and 17 of the 31 days are clear. Typical Michigan weather varies greatly from these ideal drying conditions. In Lansing, the average maximum temperature in August is 81°F, the humidity at the driest time of the day averages 56 percent, and only 10 days are clear.
PACKAGING DRIED FRUITS

Do not store sulfur treated fruit in containers with metal lids unless a cellophane or polyethylene sheet is placed under the lid. Sulfur fumes from the fruit will react with unprotected metal. Store fruit in dry, insect-proof containers such as home canning jars with well-fitting lids. Coffee cans may be used if the dried fruits are first placed in a plastic bag. Glass containers are excellent for storage because any moisture that collects on the inside can be easily seen.

Fruits should be packed into the container as tightly as possible without crushing. Storing fruits in tightly sealed, plastic bags will help keep the original fruit color. Dried fruit should be stored in a cool, dry, dark area. Most dried fruits can be stored for one year at 60°F, 6 months at 80°F.

Source:

Reviewed June 2003 by:
Angela M. Fraser, Ph.D., Associate Professor/Food Safety Education Specialist North Carolina State University, Raleigh, NC
TREATING DRIED FOOD

There is always a possibility that insect larvae or harmful spoilage organisms might be present on the surface of dried fruits and vegetables. To prevent potential problems, use one of the following methods.

Freezer — Package the dried product in plastic freezer bags and store in the freezer a minimum of 48 hours. Remove and package for permanent storage.

Oven — Layer dried food loosely in roasting pans and heat in a 175°F oven for 15 minutes or at 160°F for 30 minutes. Remove and cool the product. Package for permanent storage.

Reviewed March 2003 by:
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PACKAGING DRIED VEGETABLES

Use dry, insect-proof containers such as home canning jars with tight-fitting lids. Coffee cans may be used if the dried vegetables are first placed in a plastic bag. The vegetables should be packed into the container as tightly as possible without crushing.

Reviewed March 2003 by:
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STORING DRIED VEGETABLES

Containers of dried vegetables should be stored in a dry, cool, dark place. Low storage temperatures extend the shelf life of dried products. All dried vegetables deteriorate to some extent during storage, losing vitamins, flavor, color and aroma. For this reason, dried vegetables will not retain their appeal indefinitely. Carrots, onions and cabbages deteriorate more quickly than other vegetables, and will generally have a shelf life of only 6 months. Some vegetables, however, will be good after one year's storage.

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NUTRITIONAL CHANGES IN DRIED VEGETABLES

Fresh vegetables provide fiber, energy, minerals and vitamins. Fiber is provided by indigestible cellulose, hemicellulose, gums, and pectin. Energy is provided by the starch, sugar, and protein. Neither fiber nor energy is affected by drying. During blanching, some minerals and vitamins are lost by leaching. The amount depends upon the care exercised during blanching. To keep leaching to a minimum, blanch only as long as required. Do not under-blanch, however, because the enzymes will not be inactivated, and the dried vegetables will be of inferior quality. Even though some nutrient losses during drying are unavoidable, a tasty and wholesome product can still be prepared if the proper directions for blanching, drying, and storage are followed, and the vegetables are consumed as early as possible to keep nutritional losses to a minimum.

Reviewed March 2003 by:
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USING DRIED VEGETABLES

Water removed during drying must be replaced by soaking or rehydrating the vegetables prior to use. Root, stem and seed vegetables should be soaked for 30 minutes to 2 hours in sufficient cold water to keep them covered. After soaking, simmer until tender, allowing excess water to evaporate.

Greens, cabbage and tomatoes do not need to be soaked. Simply add sufficient water to keep them covered, and simmer until tender. Most vegetables lose their fresh flavor during drying. For this reason, flavoring such as basil, garlic, onions and chili sauce may be added during cooking to improve flavor. Dehydrated vegetables are usually not used as cooked side dishes. They are best when used as ingredients for soups, casseroles, sauces, stuffings, and stews.

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