

SOLAR DRYING for VEGETABLES

A simple method of preservation of vegetables for long term storage is to dry them. Vegetables dried to less than 10% will keep for more than six months when packed and stored in the right conditions.

CHALLENGES

Sun-drying is the most economical and ecologically sound method, but is slow, weather-dependent, and exposes the product to food safety hazards such as stray animals, foreign matter and microbes. Aflatoxin-producing fungi can become a problem, especially when drying is slow and done without regard to good drying practices.



SIMPLE SOLAR DRYERS FOR RAPID AND HYGIENIC DRYING OF VEGETABLES

Solar dryers accelerate drying and produce a hygienic product in an enclosed drying chamber. Simple dryers were developed by WorldVeg in Southeast Asia; later, these were improved and applied in South Asia and Africa.



Indirect solar dryer (*left*) and cabinet solar dryer (*above*).

TECHNOLOGY HIGHLIGHTS

Simple solar dryers maintain temperatures of 15-35°C higher than open sun-drying conditions; too high temperatures (below 60°C) can result in low quality product (discolored, loss of critical nutrients and antioxidants).

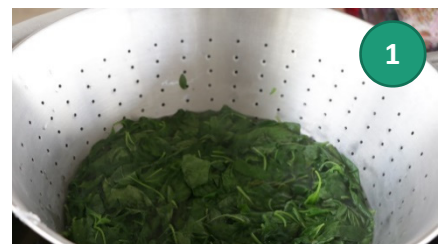
Leafy vegetables such as amaranth and African nightshade will dry within a day. Tomato and African eggplant slices, whole chili fruit, cabbage shreds and cauliflower florets dry in solar dryers to 10% moisture in 1-3 days compared to 2-6 days under open sun-drying.

TOMATO

1. Sort good quality tomatoes
2. Wash
3. Blanch for 3 min
4. Slice fruit and soak in lemon juice solution Spread on drying trays
5. Dry in cabinet dryer
6. Store dried fruit in thick plastic bags

CHILI

1. Sort red-ripe fruit; discard damaged and diseased fruit
2. Dip in 65°C water for 3 min to fix color
3. Spread on trays
4. Place in drying chamber
5. Store dried fruit in thick plastic bags



Dried vegetables can be soaked in warm water for a few minutes to rehydrate before use.

1. Blanch leafy vegetables for 1 minute.
2. Dip in cold water to cool.
3. Spread on trays, load into solar dryer.
4. Pack dried vegetables in thick plastic bags for storage.

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World Vegetable Center
Eastern and Southern Africa
P.O. Box 10 Duluti
Arusha, Tanzania

Tel: +255 (27) 255-3102/3093

Fax: +255 (27) 255-3125

avrdc.org