



ISO 9001-2000

CbS Technologies Presents

solar

Dehydrated

Fruits & Vegetables



Save for tomorrow
what you do not need today!

Fruits & vegetables Wastage: **Big Challenge**



- ▶ In many parts of the world, large quantity of fruits & Vegetables is waste every year as locals do not have appliances and space to store or preserve them for the rest of the year.
- ▶ Much is wasted on trees or gardens. Tonnes is wasted because they do not look good enough to be sold, or not sold by supermarkets.
- ▶ In such conditions farmers are bound to sell the products at low rates

Waste Reduction Solution: **SOLAR DEHYDRATION**



Dehydration is the removal of moisture under controlled temperature and humidity conditions without impairing the nutrient content and palatability.

Solar Dehydration is the utilization of free form of solar energy by using solar dehydrators to preserve fruits & vegetables.

Thus Solar dehydration offers a standard quality hygienic product in a concentrated form. Solar Dryers helps preservation of fruits & Vegetables against spoilage in a very short time.

Solar Dehydration principle



- ▶ Converting solar energy into electricity, is not efficient, but it can be efficiently used for drying, and other purposes.
- ▶ The principle of preservation by dehydration process is to remove the moisture content of a material to a level where micro-organism may not be able to grow and spoil it.
- ▶ In this process, the dehydrated product has better flavour, colour, aroma, rehydration, acceptability, etc. in comparison to sundried dehydrated products

Solar Dehydrators (Dryers)



- ▶ Many places in rural areas as well as urban areas do not get sufficient power supply throughout the day. In such places solar dryer can be useful device for drying food items hygienically.
- ▶ Apart from solar radiation and natural convection of air currents in the dryer one more feature has been added to improve the drying of fruits and vegetables. The feature is based on simultaneous generation of electricity by a solar panel and using it for creating an induced draft of air by fans installed in the dryer.
- ▶ These installed exhaust fans are run to force moisture laden air outside the dryer. This dryer achieves sufficiently high chamber temperature and dries product in accelerated manner.

Solar Dehydration method over Conventional methods



- ▶ The conventional drying methods involve drying under open atmospheric conditions, allowing dirt to collect on it & also affected by climatic conditions.
- ▶ On the other hand, Solar Dehydration method keep the products as natural and non-polluting as possible.
- ▶ No post treatment & chemicals required for preservation purpose.

Advantages



- ▶ It improves the bargaining position of farmers. Sometimes farmers sell at very low prices during the harvest season because they cannot store or preserve their surplus products.
- ▶ Dried products improve family nutrition because fruit and vegetables contain high quantities of vitamins, minerals and fibre.
- ▶ By use of this dryer, the drying process is made 5 times faster than normal sun drying procedure resulting in substantial weight reduction.
- ▶ 100 kg of grapes can be converted to 25 kg of raisin.
- ▶ It has no adverse effect to environment.
- ▶ For diabetics dried fruit prepared without adding sugar is a healthy choice instead of desserts.

Application & Uses



The foldable solar Dryer in the capacity of 10, 25 & 100Kg is used for the preparation of raisin, drying of grapes, onion, mango, green chilly, mint, ginger, garlic, apples, apricots, green pepper and Herbal medicines etc.

The dehydrated vegetables are used to manufacture instant vegetable noodles, soups, snacks and fast food.

Dehydrated onion can be used as condiment and flavouring agent in manufacturing of tomato ketchups, sauces, salad, pickles, chutneys, meat sausages, masala bread and buns, breakfast foods, etc.

Dehydrated garlic can be used for aids in digestion and for absorption of food having athelemetic and antiseptic properties and in some medicinal formulations.

Few Pictures of Solar Dehydrated Fruits & Vegetables



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Conclusion

- ▶ We are blessed with abundant of solar Energy.
- ▶ Most vegetable & fruits are reasonable and dehydration technology makes the availability through out the year in hygienic conditions at reasonable cost, yet conventional enough to be used by large scale catering establishments and in defence rations because of ease of handling and also in various expeditions/missions like mountaineering, deep sea fishing etc.
- ▶ Drying reduces the volume and bulk of the material and thus saves packaging and transportation cost.



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**This is not the end
but beginning of new association...**

**CbS Technologies Pvt. Ltd.
110-111, 1st floor
Rishabh Impex Mall, opp. Max
Hospital,
Patparganj, Delhi -92
011 - 42342478-9
www.cbseenergy.com**