

## FICHE TECHNIQUE

### Solar drying tent

#### What is solar drying

To freely use the renewable and non-polluting energy as the main source provided by the sun, the introduction of solar dryers in developing countries can reduce crop losses and significantly improve the quality of the dried product compared to traditional drying methods (HOUHOU, 2012). In recent years, many attempts have been made to develop solar drying, mainly to preserve food products. Solar drying systems must be properly designed to meet the requirements of drying, especially; specific crops, and to give a satisfactory performance about the energy requirement (HOUHOU, 2012).

The purpose of the drying operation is to eliminate or evaporate the water inside the product, this operation is ensured by several methods for example: exposure to the sun, storage in a dry place, also by using the air heated under the action of solar radiation as a heat source, whose processes are carried out in a well thermally insulated chamber to ensure the drying operation (HOUHOU, 2012).

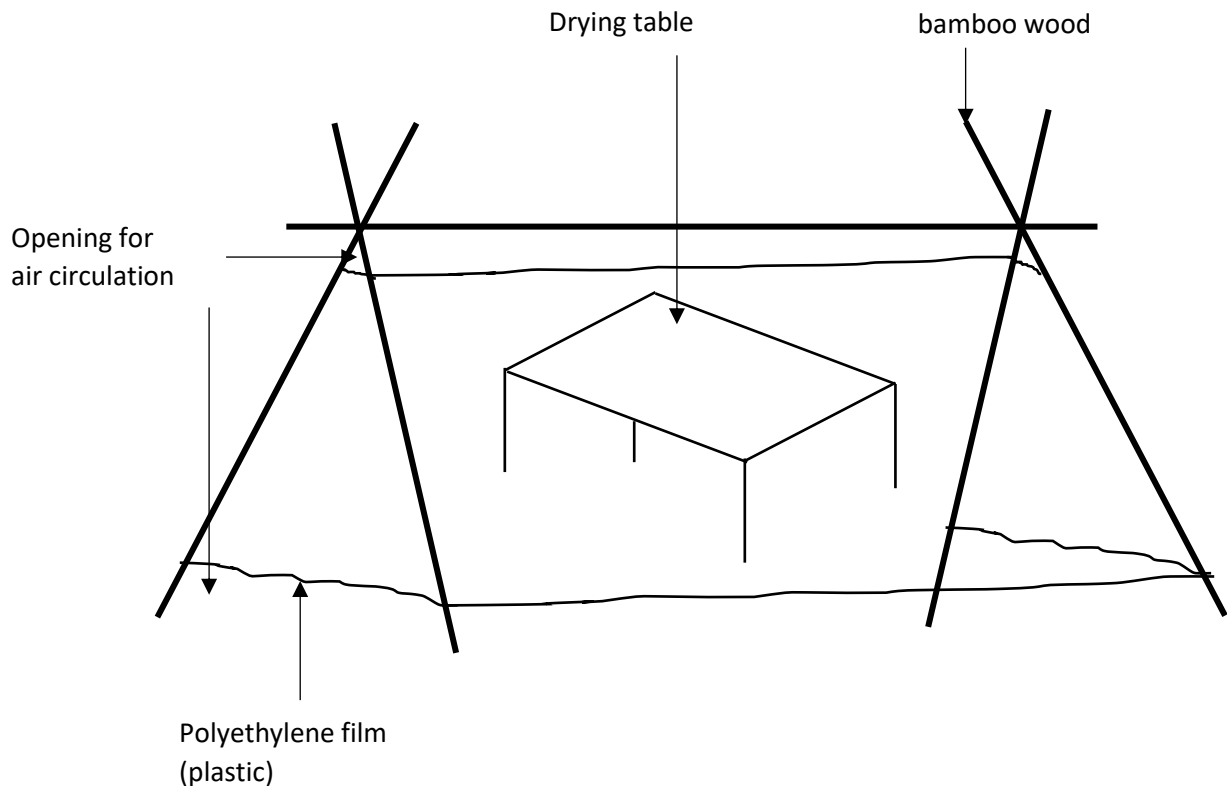
Solar drying in regions with a large solar resource is very useful from an economic point of view. This operation of conservation and valorization, which favors the storage of agri-food products and uses solar energy as a source of heating, constitutes a profitable means for the dehydration of these products (HOUHOU, 2012).

Today, it remains a widespread technique throughout the world. Drying allows surplus production to be stored and used for marketing in times of shortage (GRET, 1996). They are abundant on the markets for a few weeks of the year, only to be in short supply the rest of the time. The large quantities put on the market cannot be sold in full, which leads to heavy losses and a fall in prices. The sale of dried products offers interesting income prospects for rural families (GRET, 1996).

Drying consists of removing water from a food by evaporation in order to improve its preservation. There are four main types of solar drying (GRET, 1996):

- **Traditional sun drying** on the ground, on flat rocks, mats, prepared areas, or on the roof of houses.
- **Direct solar drying**: the sun strikes the product placed in the dryer directly.
- **Indirect solar dryer**: consists of a collector that collects the solar energy and a separate drying chamber that shelters the products to be dried from the sun.
- **Hybrid dryer**: an auxiliary energy is used in addition to the solar energy either to maintain the temperature (gas, oil, electricity, wood heating) or to ensure a forced air circulation (electric fan).

## Solar drying model



**Figure 1 :** Model of a solar dryer

### Features of the technology

- Cost-effective
- Portable and environmentally friendly
- Stable dried fish products free from dust and insect contamination
- Can increase fish farmers' income by 55%.
- Reduces post-harvest losses to zero

### Bibliographic references

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