



FISH DEHYDRATION

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DEHYDRATION

The removal of moisture is attained either naturally or artificially by heat or pressure.

Factors influencing the rate of evaporation are the ambient temperature, relative humidity, pressure and velocity of air, size and shape of the wet material and direction of movement.

An important phenomenon to be considered during drying is critical moisture content.

The dehydration varies according to different species but it has colossal importance in drying because if dried beyond critical moisture level the spice may become over dried.

During drying various other processes also take place such as cooling effect, shrinkage effect, case hardening, heat damage, loss flavor and migration of soluble constituents.



DEHYDRATION

Traditional sun drying

Solar drying

A. Direct type

B. Indirect type



DEHYDRATION

Direct drying system

Types of direct dryers in use

Solar cabinet dryer

Small holder copra dryer

Low cost poly solar dryer

Cabinet type solar dryer

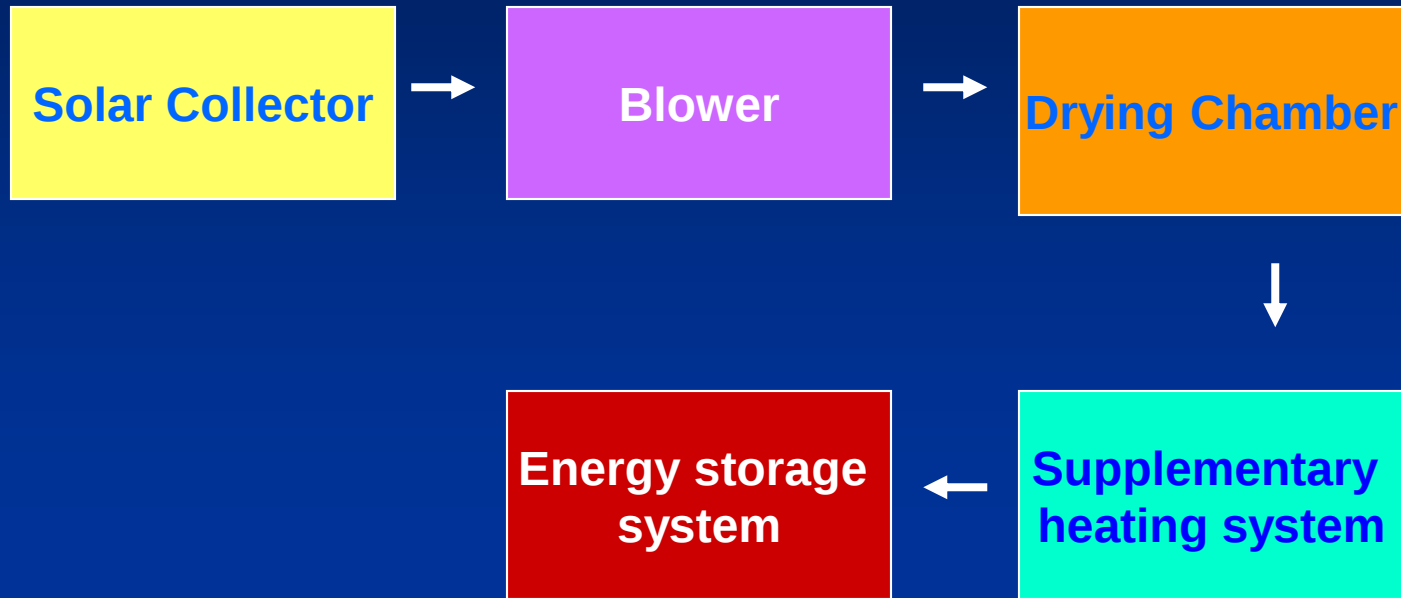
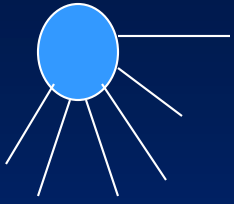
Solar air drying system

Low cost solar dryer



DEHYDRATION

Indirect drying systems



DEHYDRATION

Indirect drying system

Types of indirect dryers

Solar water heater dryer

Solar air heater dryer

Forced flow dryer

Indigenous solar-indirect type



MECHANICAL DEHYDRATION

Hot air dryer

Air heated by steam or electricity is forced over the fish by a blower



MECHANICAL DEHYDRATION

Cabinet dryer

The fishes are spread in trays and placed in the cabinet in fixed position or the trays are arranged on a trolley and played it in to and air is forced over a heater a cross fish



MECHANICAL DEHYDRATION

Tunnel type heater

Cabinet is divided horizontally in to two chambers, an electric heater of the required capacity being installed in a upper chamber

Air forced across the heater at upper chamber and reflector down the air to lower chamber along with this, the moisture sucked out by an exhaust fan



MECHANICAL DEHYDRATION

Multi-deck tunnel dryer

Several tunnels are arranged one above one

Air is be blown in a zig-zag

The controls, heaters, air blowers and exhaust fans are fitted at the ends

Trays are moves with fish from one deck to the next by mechanicals means

Hot air forced through a bed of the fish

The fish moving on a conveyor belt with sufficient velocity and constant agitation



MECHANICAL DEHYDRATION

Fluidised bed dryer

The principle involved is to force hot air through a bed of the fish to be dried moving on a conveyer belt with sufficient velocity to suspend the bed in a condition of constant agitation

While in the case of light materials like very small fishes, fish meal, the suspension is easily accomplished, larger fishes are difficult to be suspended

Drying is quicker and more efficient in this type of dryer



MECHANICAL DEHYDRATION

Vortex dehydration or Rotary Dryer

It consist of doubled-walled cylindrical shells mounted horizontally at a slight angle on bearings, so that they can be rotated by an electric motor.

Heating is done by passing steam through the interspace between the two walls of the drums.

Baffle plates fixed inside horizontally agitate the material and the moisture liberated is drawn out by an exhaust fan.

This dryers are suitable for drying fishes like anchoviella and prawns as well as fish meal.

