

Drying of Anchovies (*Stolephorus indicus*) in a Solar Polythene Tent

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The drying parameters of anchovies dried in solar tent dryer and under sun are compared. Though the temperature inside the tent was 14-15°C higher than the ambient temperature during early afternoon in sunny days the drying rate did not show any significant difference between the two methods. Hence solar tent dryer offered little merit but for the protection given by tent against dust, insects, birds or sudden shower.

Sun drying has many limitations such as inadequate control of insects, exposure to pests, slow drying rate and contamination with sand.

In recent years, some interest has been shown in the use of solar tent dryers for drying fish (Doe *et al.*, 1977 Sachithanathan, *et al.*, 1983, 1986; Curran & Trim, 1982; Curran *et al.*, 1986). By achieving higher temperatures and low relative humidity, solar tent dryers can increase drying rates, improve product quality, increase storage life, provide protection against insect infestation and flies, eliminate access to preying birds and exclude dust. The present work describes the quality of anchovies dried in solar tent dryer and under sun.

Materials and Methods

Fresh anchovy (*Stolephorus indicus*) of the purse seine catch obtained from the landing centre was used for the studies. One portion of it was wet salted in saturated brine in the ratio 1:1 for 4-4 1/2 days. Wet salted and unsalted anchovies were sun dried over aluminium trays and in solar tent dryer. The design and construction of the tent was similar to the one described by Doe *et al.* (1977). The water activity of fish and solution were noted. Drying was carried out for 8 h each day and at night the samples were held indoor. The products were dried till they attained constant weight. The am-

bient temperature and relative humidity were recorded during drying. Two batches of the samples were dried.

Results and Discussion

The water activity of the brine and fish when the system attained equilibrium (4 - 4 1/2 days) was 0.80 and 0.79 for batch I and 0.77 and 0.79 for batch II respectively. During sun drying ambient temperature and relative humidity ranged from 25 to 35°C and 48 to 82% respectively. The average drying time and temperature during sun drying and solar tent drying are given in Table 1. The average moisture content of salted and tent/sun dried products during different periods of drying are given in Figs. 1 & 2.

Table 1. Average drying time and air temperature during drying

Product	Sun drying		Solar tent drying	
	Hrs.	°C	Hrs.	°C
Unsalted anchovies	20	29-33	19	29-47
Salted anchovies				
Batch I	18	28-32	18	28-47
Batch II	18	25-35	18	24-50

The initial moisture content of unsalted anchovies was 75.6% and the final moisture content of the sun dried product was 11%

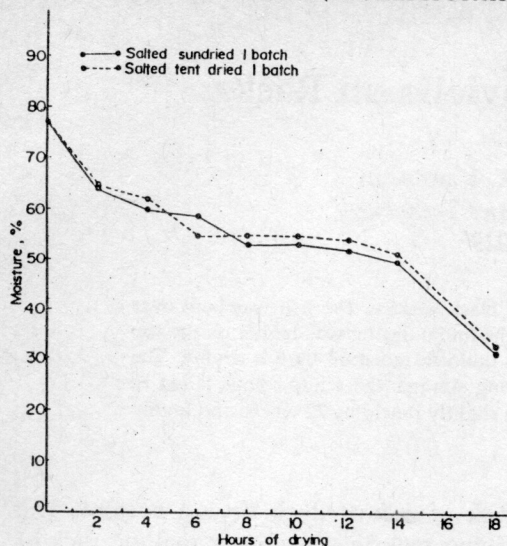


Fig. 1. Drying curve for salted anchovies, Batch I

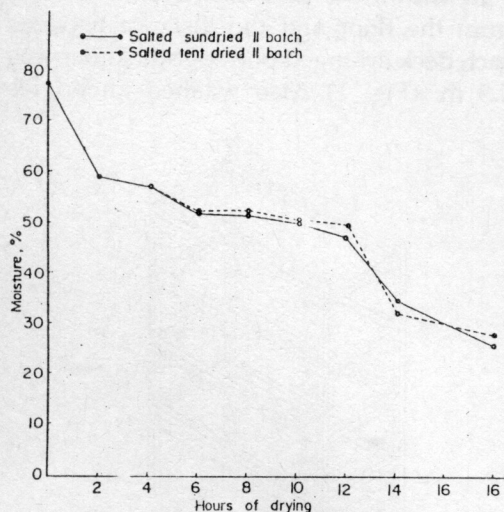


Fig. 2. Drying curve for salted anchovies, Batch II

and tent dried product 14%. The first batch of salted fish had a moisture content of about 78% and the sun dried product had a moisture content of 32% and tent dried product, 33%. The second batch of salted fish had a moisture content of 77.4% which was reduced to 25.8% in the sun dried product and 27.5% in the tent dried product. On sunny days during the early hours of afternoon the temperature inside the tent was 14-15°C higher than the ambient

temperature. During morning and evening as well as cloudy days the temperature difference was insignificant.

As seen from the results, the solar tent dryer did not shorten the drying time as expected, though the temperature in the tent was higher. Generally 2-3 days of drying were found necessary to prepare a good dried product. Sathithananthan *et al.* (1983, 1986) and Curran *et al.* (1986) had similar experience during drying fish in tent driers and their results compared well with those of the present study. Therefore, solar tent offers little merit but for the protection given by tent against dust, insects, birds or sudden shower. (Doe *et al.*, 1977; Sripathy & Balasaraswathi, 1985).

References

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