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Research Paper :

Effect of different pretreatments of the sensory quality and drying kinetics of fig (*Ficus carica* L.) fruits

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ABSTRACT

In the present investigation attempt has been made to evaluate the effect of different drying pretreatments on the sensory qualities of dried fig fruits and on drying kinetics. Three drying pretreatments *viz.*, Blanching + KMS dip, Blanching + ammonium carbonate dip and ammonium carbonate + KMS dip. The pretreated fig fruits were then dried in convective type cabinet drier at 60±5 ^{0}C temperature till the moisture content reduced to 20 per cent predetermined level. It was observed that the fig fruits pretreated with blanching + KMS dip were best in sensorial quality parameters followed by those pretreated with ammonium carbonate + KMS dip. The pretreatments also showed drastic reduction in drying time of fig fruits.

Key words : Fig fruits, Pretreatments, Cabinet drying, Sensory quality

The fig is a moderately important world crop, with an estimated annual production of 1,077,211 tons of fruits (FAO, 2003). The biggest fig producer is Turkey and has approximately 23.50 % of the total production of the world and about 51.60 % of this crop is sold as dried fruit (Ibrahim, 2005).

Figs have a great importance in nutrition due to being important source of carbohydrates. They contain essential amino acids and are rich in vitamins A, B_1, B_2 and C and minerals. Fresh figs are very sensitive to microbial spoilage, even in cold storage conditions; thus they must be preserved in some way (Sandhu, 1990).

Fig, one of the earliest cultivated fruit, is the most important dried product with several varieties (*Ficus carica* is one of them) dried and stored for later consumption (Vinson, 1999).

Drying of fruits and vegetables is one of the oldest forms of food preservation methods known to man and is the most important process for preserving food since it has great effect on the quality of dried product. Also it brings about substantial reduction in weight and volume, minimizing packaging, storage and transportation costs (Okos *et al.*, 1992).

The drying of whole fruits with hot, dry air poses problems about the use of optimal air water mixtures, especially if the fruits are rich in sugars. Hot, very dry air can remove water from fruits faster than the fruit can allow, because fruit peel is, in general, barrier to water vapor passage. When this occurs, fruits tend to swell and liquid leakage results in the penduncular area or from the peel cracks. Fruits rich in sugar, moreover, may undergo hardening of the surface layers (case hardening), because of sugar movement from flesh to peel. Some technological strategies can solve these problems *viz.*, use of pretreatments such as blanching, which causes microwounds on the peel and chemical treatments, which removes waxy layer, thus enhancing water evaporation from fruits.

Materials:

Fig fruits:

The good quality fresh fig fruits of Deanna variety were procured from the Farmer's field.

Chemicals:

The different chemical such as potassium metabisulphite (KMS), ammonium bicarbonate, etc. were made available from the Laboratory.

Equipments:

Cabinet dryer mounted in the pilot plant of college was utilized for this project.

METHODOLOGY

Pretreatments:

Blanching and sulphitation:

The blanching of fresh fig fruits was carried out in water at 80^{0}C temperature for 4 minutes. The ratio of fruit to blanching water was maintained as 1:5. The blanched fruits were then dipped in 1 per cent potassium metabisulphite (KMS) solution for 30 minutes. The treatment was coded as T_1.