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MATERIALS AND METHODS

This investigation was carried out on Meet-Ghamr peach cultivar during the two successive seasons 1984, 1985. 30 trees, eight years old, budded on local Baladi peach root stocks, were selected. Trees were spaced at 5 meters distance. They were all about the same in their vegetaive growth and were subjected to the normal treatments of the orchard which is situated in Meet Abou El-Ezz, Meet-Ghamr, Dakahlia governorate, and belongs to Mr. M. Abdallah Hussein.

Three ways of picking fruits were used:

1- Shaking the trees and leaving the fruits to fall on the ground.

2- Shaking the trees and receiving the falling fruits on a mat under the tree.

3- Picking by hand, by turning the fruit in a full round towr to assure a round separation of the fruit from its pedical, without causing any injury to the fruit skin round the pedical. Three full buckets (replicates) representing every method of picking were randomly picked and transported immediatly to the laboratory. Every plastic bucket contained about 140 peach fruits.

In addition, the effect of the different transporting

containers on the percentage of mechanical injury in fruits was calculated. All the fruits were picked by hand (the third method), using the following transporting containers:

1- Palm crate without liner (about 15 kg. capacity).

2- Palm crate with perforated cardboard liner (about 14 kg. capacity).

3- Plastic box (60 x 40 x 18 cm. dimentions and 18-22 kg. capacity).

4 - Plastic bucket (about 7 kg. capacity).

Three replicates were randomly taken from every kind of containers in order to determine the percentage of mechanical injury occuring to the fruits, immediatly after transportation via trip of about 100 km. to the laboratory.

After determining the percentage of decayed fruits, they were discarded, and sound fruits were used in studying the following:

1--The effect of the picking stage on the keeping quality of fruits:

It was studied by picking mature fruits (according to Barakat et. al., 1970) and semi-ripe fruits and storing them at 32 °F, in order to study the effect of picking stage on the keeping quality of fruits. Three replicates of 100 fruits for each replicate were used for every picking stage. The following physical and chemical properties were studied every week to determine the right picking stage for

successful cold storage: loss in weight, decay percentage, firmness, colour, acidity and T.S.S/acid ratio. The study was carried out during the two successive seasons 1984, 1985.

2-detrmining the suitable cold storage temperature:

Two cold storage temperatures, namely 0 °C and 5 °C, were tried to study the suitable cold storage temperature for Meet-Ghamr fruits. The replicates of 100 fruits for each replicate were stored under every temperature. Some physical and chemical properties were studied every week to detrmine the suitable cold storage temperature for Meet-Ghamr fruits (color, loss in weight, decay percent, firmness, acidity, T.S.S. and T.S.S./acid ratio). The study was carried out during the two successive seasons 1984, 1985.

3-studying the effect of the hot water and some disinfectants on the keeping quality of Meet-Ghamr fruits:

The fruits were divided into 8 prestorage treatments as following:

1- Control: washing fruits with normal water only, and drying in open air.

2- Dipping in hot water (50 °C) for 5 minutes and drying in open air.

3- Dipping in Botran (1000 ppm) for 5 minutes and drying in open air.

4- Dipping in Botran (2000 ppm) for 5 miutes and drying in open air.

5- Dipping in Bravo (1000 ppm) for 5 miutes and drying in open air.

6- Dipping in Bravo (2000 ppm) for 5 miutes and drying in open air.

7- Dipping in Rovral (1000 ppm) for 5 miutes and drying in open air.

8- Dipping in Rovral (2000 ppm) for 5 miutes and drying in open air.

All treated and untreated fruits were then inoculated with Rhizopus stolonifer. Three replicates of 200 fruits for each replicate were used in every treatment, and every replicate was stored in a plastic box at 5 °C and 85% R.H. (Relative Humidity). Each box of the above treatments and replicates was divided into two parts:

Part (1) representing fruits needed for the periodical determination of the physical and chemical properties (loss in weight, decay percent, firmness, rind colour, acidity, T.S.S. , T.S.S/acid ratio, and total sugars).

Part (2): representing fruits needed for determining the percentage of loss in weight.

The study was carried out during the two successive seasons 1984, 1985.

Methods of physical and chemical determinations:

Loss in weight:

This character was determined for every treatment by weighting 100 fruits periodically during the storage period and the weight loss was calculated as following (Kabeel et. al. 1959).

$$\frac{\text{Average loss in fruit weight} \times 100}{\text{average fruit weight at the begining of storage}}$$

Where:

Average loss in fruit weight = Average fruit weight at the begining of storage - average fruit weight at any date.

Decay percentage:

At every storing date, decayed fruits were recorded and discarded. Decay was expressed as percentage of discarded fruits from the original sample (Kabeel, 1959).

Rind colour:

The rind of Meet-Ghamr fruits always shows more than one colour when they reach the mature and ripe stages. Therefore, it was found more efficient to determine the rind colour according to the colour which show the larger area on the fruit rind (the dominant colour).

The basic colour and the development in basic colour during the different storage periods was determined by the Horticultural Colour Chart. This chart was issued by the British Colour Council, Royal Horticultural Society in London (1938).

Fruit firmness:

Fruit firmness was carried out by using the University of California Firmness Tester (U.C. Firmness tester LIC. MFGR, western Ind. Supply S.F. California, Pound [illegible]). (Blanpied et. al. 1978).

Titratable Acidity:

25 gm. of the fresh fruits were homogenated with 250 CC distilled water in a blender, filtered and 2 CM^3 of the filteration were titrated with 0.1 N-sodium hydroxide, after adding 2 drops of phenolphthaline as indicator. Acidity was calculated as malic acid in 100 gm. fresh weight.

Total soluble solids:

Zeiss laboratory refractometer was used to determine the total soluble solids of the juice.

T.S.S./acid ratio:

T.S.S./acid ratio was calculated as follows:

$$\text{T.S.S./acid ratio} = \frac{\text{T.S.S.}}{\text{Acidity}}$$

Total sugar:

Total sugars were determined colourimetrically using phenol sulphuric method as described by Smith et. al. (1956).

The statistical analysis of the present data was carried out according to Snedecor & Cochran (1972). Means are compared using the New L.S.D values at 5% level.