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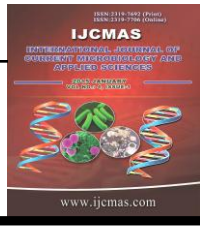

Original Research Article

Effect of Method of Harvesting on Storage Behaviour of Mango (*Mangifera indica*) cv. Kesar

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A B S T R A C T

Freshly harvested 10 fruits of with stalk and without stalk having uniform shape, size, color and maturity were selected for this study and were packed in card board carton boxes using news paper as lining material and stored under laboratory conditions. various storage attrbutes were studied at 5, 10 and 15 days interval of storage. The fruits harvested with stalk have shown good appearance and marketability up to 15 days due to slower respiration, glossy appearance and minimum decay loss. If the mango fruits were harvested without stalk and their latex was not properly swabbed, the latex will trickle down on the fruits surface and may as well spoil adjacent fruits. The longer shelf life and better marketbility were also observed in Alphonso amd Dashehari fruits with a small stalks.

Keywords

Kesar mangoes, fruits with stalk and with out stalk

Introduction

For increasing the shelf life and to stabilise the market demand the kesar mangoes were hand picked without stalk and by manual harvester with stalk of 10mm length. It was observed that stalk did not cause any loss as their abscission occurred in ripen fruits after 6 days of storage.

During hand harvesting of mangoes, the latex (sap) trickles down on the fruit surface from the point of detachment which imparts dull appearance to fruits up on storage. The present investigation was under taken to compare the storage behaviour of kesar mangoes harvested with or without stalk.

Materials and Methods

The experiment was carried out in 2002 at S.V Agricultural College, Tirupathi under laboratory conditions. The physiologically matured hard green kesar mango fruits were harvested without stalk and with stalk (10mm length) by a manual harvester. Freshly harvested 10 fruits of with stalk and without stalk having uniform shape, size, color and maturity were selected for this study and were packed in card board carton boxes using news paper as lining material and stored under laboratory conditions.

Various storage attributes were studied at 5, 10 and 15 days interval of storage. physiological loss in weight was determined

by calculating the loss in weight of fruits during storage over initial values. The abscised stalks were weighed along with the respective lot of fruits. For marketable fruits, the number of visibly sound fruits, that can be marketed were counted and expressed in percentage over the total number of fruits at specific intervals. Decay loss was calculated on the basis of number of fruits spoiled. Total soluble solids (TSS), Titrable acidity, ascorbic acid and Total sugars were assessed.

Results and Discussion

The marketability of these fruits was also less as compared to the fruits with stalk (Table 2). It has been noted that stalk detached itself after completion of ripening (6 days) and no bruising or puncturing was observed due to pedicel in the fruits harvested with stalk and up on ripening developed attractive yellow color with glossy appearance.

The reduction in percentage marketability of fruits harvested without stalk was faster than the fruits with stalk. The fruits harvested with stalk have percentage of marketability and moderate shrinkage compared to fruits harvested with out stalk. The percentage decay loss was significantly higher in fruits without stalk.

The spoilage in fruits was mainly due to stem end rot and Aspergillus rot. The percent PLW increased consistently during storage of mango fruits. However, significant differences were not recorded in PLW in the two treatments.

The total soluble solids (TSS) of percent at harvest increased approximately 17 percent upon ripening. However, the level of acidity and ascorbic acid content was slightly higher in the fruits harvested with stalk but difference between two treatments was not significant during storage of fruits (Table 4).

The reducing sugars and total sugars was much better in fruits harvested with stalk compared to fruits without stalk during storage (Table 7) Haque (1918).

The fruits having stalk exhibited lower respiration (23.5 mg CO_2/kg/hr) than fruits without stalk (93.2 mg CO_2/kg/hr) after 24 hours of harvest. The respiration increase during storage period was slightly lower in fruits with stalk but the differences were not significant (Singh *et al.*, 1943).

The fruits harvested with stalk have shown good appearance and marketability up to 15 days due to slower respiration, glossy appearance and minimum decay loss.

If the mango fruits were harvested without stalk and their latex was not properly swabbed, the latex will trickle down on the fruits surface and may as well spoil adjacent fruits. Haque (1918) advocated harvesting mango fruits with stalk for good quality and our observations confirmed his findings.

Table.1 Effect of method of harvesting on PLW (%) of Kesar mangoes during storage.

Treatments	Storage period (days)		
	5	10	15
Without stalk	11.58	17.51	21.16
With stalk	9.53	16.26	19.57
S.Em +/-	0.11	0.16	0.07
C.D at 5%	0.33	0.47	0.21

Table.2 Effect of method of harvesting on marketable fruit (%) of Kesar mangoes during storage.

Treatments	Storage period (days)		
	5	10	15
Without stalk	100.00	77.85	65.71
With stalk	100.00	82.25	69.64
S.Em +/-	4.09	1.50	2.07
C.D at 5%	-	4.28	-

Table.3 Effect of method of harvesting on spoilage fruit (%) of Kesar mangoes during storage.

Treatments	Storage period (days)		
	5	10	15
Without stalk	0.00	22.14	34.28
With stalk	0.00	17.50	30.35
S.Em +/-	4.09	1.46	1.63
C.D at 5%	-	4.19	-

Table.4 Effect of method of harvesting on Total soluble solids (%) of Kesar mangoes during storage.

Treatments	Storage period (days)		
	5	10	15
Without stalk	14.15	15.36	16.15
With stalk	14.47	16.01	17.06
S.Em +/-	0.03	0.02	0.04
C.D at 5%	0.08	0.07	0.11

Table.5 Effect of method of harvesting on Titrable acidity (%) of Kesar mangoes during storage.

Treatments	Storage period (days)		
	5	10	15
Without stalk	0.63	0.37	0.24
With stalk	0.65	0.41	0.25
S.Em +/-	0.003	0.003	0.001
C.D at 5%	0.008	0.009	0.004

Table.6 Effect of method of harvesting on Titrable acidity (%) of Kesar mangoes during storage.

Treatments	Storage period (days)		
	5	10	15
Without stalk	16.82	12.82	10.34
With stalk	17.55	14.75	11.62
S.Em +/-	0.03	0.02	0.03
C.D at 5%	0.01	0.06	0.09

Table.7 Effect of method of harvesting on Total sugars (%) of Kesar mangoes during storage.

Treatments	Storage period (days)		
	5	10	15
Without stalk	12.34	13.34	14.29
With stalk	12.79	14.26	14.79
S.Em +/-	0.01	0.02	0.02
C.D at 5%	0.05	0.06	0.06

Further, Pthak and Srivastava (1927) reported that mango fruits harvested without pedicel and more decay loss due to scar left at the time of harvesting which is again in confirmity with our observations. The longer shelf life and better marketability were also observed in Alphonso amd Dashehari fruits with a small stalk s(Roy and pal 1931). The higher level of acidity in fruits with stalk reported the contention of slower rate of respiration due to less utilization of organic acids.

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