EFFECT OF PACKAGING MATERIALS AND $KMnO_4$ ON SHELF LIFE OF PEACH FRUIT CV. SHAN-E-PUNJAB UNDER AMBIENT CONDITION

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Peach is an important fruit crop of low-mid altitude of North Eastern Region of India. It matures at a time when no other fresh fruit is available in the market. Being a climacteric fruit it has short shelf life and it is difficult to transport it to distant places without deterioration in their quality. Therefore, farmers are compelled to sell their produce at lower rate in local market. There is need to extend the shelf life of peach fruits by use of chemical and packaging materials so that it can be transported to the distant market without deterioration in their quality. Many workers reported use of chemicals and packaging materials in extending shelf life of different fruits (Nwufo et al., 1994, Ram-Krishna et al., 1994 and Naik and Rokhade, 1994). Therefore, an attempt was made to identify the suitable treatment combination for improving the sheld life of peach fruits.

The present study was conducted on peach Cv. Shan-e-Punjab with six treatments (control, $KMnO_4$, LDPE, CFB, $KMnO_4$ + LDPE and $KMnO_4$ + CFB) in the laboratory, Division of Horticulture, ICAR Research Complex for NEH Region, Umiam, Meghalaya during 2000. The treatments were replicated thrice in completely randomized design. Each treatment consisted of 100 fruits picked on same day from all the direction of tree at same stage of maturity. Fruits were cooled by keeping in laboratory shade under fan for two hours. LDPE was used 200 gauge with 0.5% pore, CFB, 5ply with 1% pore and $KMnO_4$ 1000ppm. Fruits were dipped in distilled water and $KMnO_4$ solution for 10 minutes and stored at room temperature (17+20C, RH 85%) in different packaging materials. Date were recorded on physiological weight loss and physico chemical qualities of fruits at three days interval up to nine as per procedure given by Rangannan (1997). Data were analyzed as per standard statistical procedure.

Physiological loss in weight of fruits increased with increasing period of storage in all treatments (Table 1). Maximum weight loss (6.2%) was recorded in fruits packed in $KMnO_4$ + CFB while minimum weight loss (3.7%) in LDPE packed fruits up to six days of storage. Similar finding were also reported in peach (Kumar et al., 1987), in ber (Ram Krishna et al., 1992) and in mango (Wavhal and Anthale,1989). Maximum shelf life (nine days) of peach fruit was observed in $KMnO_4$ + LDPE packed fruits while minimum (three days) was in control and CFB stored fruits. Shelf life of peach fruits for a period of six days with $KMnO_4$ treatment was also reported by Sandooja et al. (1986).

TSS increased in all the treatments with increase in storage periods. Similar findings were also reported by Kumar et al. (1987). However, highest TSS 10.1% had been observed in fruits stored in $KMnO_4$ + CFB kept for six days at room temperature (Table 1). Increased in TSS during storage might be partly due to the conservation of starch into sugars.

It was evident that both the acidity and ascorbic acid content in peach fruits were decreased with increasing period of storage (Table 2). The lowest acidity (0.38%) was recorded in the fruits treated with $KMnO_4$ + CFB and highest acidity (0.72%) was found in $KMnO_4$ + LDPE for six days of storage compare to other storage treatments. These findings were also supported by Kumar et al. (1998) in guava fruits. The decreased in acidity might be due to metabolic changes in organic acid during storage. While, highest

ascorbic acid content (2.3 mg/100g) was recorded in $KMnO_4$ + LDPE treated fruits up to nine days of storage and lowest (0.38mg/100g) in $KMnO_4$ treated fruits for six days of storage at room temperature. These findings were in agreement with Ram Kishan et al. (1994) in ber. The decrease in ascorbic acid during storage might be due to the irreversible conversion of L-ascorbic into dehydro ascorbic acid in the presence of enzyme ascorbic acid oxidase.

It may, therefore, be concluded that $KMnO_4$ + LDPE was the best treatment combination for extending the shelf life of peach fruits up to nine days at ambient temperature.

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Table 1. Effect of different treatments on Physiological loss in weight (PLW) and TSS changes during storage

Treatments	0 day		3 days		6 days		9 days	
	PLW(%)	TSS(%)	PLW(%)	TSS(%)	PLW(%)	TSS(%)	PLW(%)	TSS(%)
Control	0	8.7	3.9	9.2				
$KMnO_4$	0	8.6	3.0	9.4	5.9	9.7		
LDPE	0	8.6	2.1	9.1	3.6	9.4		
CFB	0	8.8	3.1	9.6				
$KMnO_4$ +LDPE	0	8.6	2.4	9.0	3.9	9.3	5.1	9.5
$KMnO_4$+CFB	0	8.6	3.4	9.7	6.2	10.1		

Table 2. Effect of different treatments on acidity and ascorbic acid changes during storage.

Treatments	0 day		3 days		6 days		9 days	
	Acidity (%)	Ascorbic acid(mg/ 100g)	Acidity (%)	Ascorbic acid(mg/ 100g)	Acidity (%)	Ascorbic acid(mg/ 100g	Acidity (%)	Ascorbic acid(mg/ 100g
Control	0.97	5.38	0.56	0.77				
$KMnO_4$	0.97	5.38	0.69	1.15	0.56	0.38		
LDPE	0.97	5.38	0.69	3.01	0.56	2.30		
CFB	0.97	5.38	0.72	1.15				
$KMnO_4$ + LDPE	1.02	6.15	0.87	4.60	0.72	3.01	0.67	2.30
$KMnO_4$ + CFB	0.97	5.38	0.56	2.30	0.46	1.15		