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Chemical, sensory and microbiological characteristics of active packaged peach fruits

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Abstract
Peaches are known for their palatable flavour and abundant nutrients. However, peaches are perishable, and the existing preservation techniques for peaches are still immature. Therefore, to extend the shelf life and prevent nutrient loss of perishable peaches experiment was conducted to find out the effect of active packaging and different levels of ventilation on quality of peach fruits under refrigerated storage conditions. Peach (*Prunus persica* L.) fruits of cultivar "Shan-e- Punjab" were harvested at colour break stage and packed in thermocol trays wrapped with polypropylene (PP) and low density polyethylene (LDPE) bags comprising the following treatments : T_1 (control), T_2 (ethylene absorber + 0 perforation), T_3 (ethylene absorber + 4 perforations), T_4 (ethylene absorber + 8 perforations), T_5 (oxygen absorber + 0 perforation), T_6 (oxygen absorber + 4 perforations), T_7 (oxygen absorber + 8 perforations), respectively. The packed fruits were stored under refrigerated conditions and analysed at regular interval of 7 days to ascertain the changes occurring in chemical, sensory and microbiological quality parameters. Total and reducing sugars increased upto 21 days of storage in both PP and LDPE packaging and thereafter decreased. T_3 (ethylene absorber + 4 perforations) recorded the minimum mean reducing sugar content of 2.80 per cent in PP and 2.71 per cent in LDPE whereas, maximum total sugar of 8.36 per cent in PP and 8.24 per cent in LDPE and reducing sugar of 3.17 per cent in PP and 3.10 per cent in LDPE were observed in control (T_1). Initially no microbial growth was observed in both the packaging materials upto 7 days whereas, after 28 days of storage highest mean microbial count of 4.29 x 10^4 and 5.00 x 10^4 CFU/g were recorded in treatment T_1 (control) in PP and LDPE, respectively. On the basis of sensory scores T_3 (ethylene absorber + 4 perforations) was rated best among all the treatments in both packaging materials. Overall, T_3 (ethylene absorber + 4 perforations) was best suited active packaging to retain quality as well as reduce the spoilage of peach fruits during storage under refrigerated conditions.

Keywords: Peach, active packaging, microbial, sugars, sensory, perforations

Introduction
Peaches are important temperate fruit crop well adapted to sub-tropical climate. Peaches are climacteric fruits with short post-harvest life. Degradation in quality of fruits in storage is mostly due to its relatively high metabolic activity during storage (Fattahi *et al.*, 2010) [1]. The peach fruits have shelf-life of 2-3 days under ambient conditions and about 2 weeks under cold storage conditions (Kader, 2001) [2]. Increase in the shelf life of peach fruits would help the growers to supply their produce according to the market demand and fetch better prices and also make the fruits available to the consumers over an extended period of time.
The recent development of active packaging provides another approach to extend the freshness of food products. Active packaging changes the environmental conditions to maintain the sensory properties and ensure the safety of the product. The active packaging may act either by progressively releasing active agents to the surrounding atmosphere or by absorbing the compounds that deteriorate the food, such as oxygen or free radicals. This kind of packaging does not require direct contact to the foodstuff to exhibit antioxidant properties. In this way, the compounds inhibit the development of enzymatic reactions (Montero-Prado *et al*., 2011) [3] and oxidative spoilage for a longer period of time than under the conditions by which these antioxidants are typically used. In the case of radical scavengers, there is no release of active agents, but only direct action from the packaging material
Ethylene is a plant hormone responsible for the ripening of fruit. During storage; ascending concentration of ethylene could result in significant quality loss. This tends to accelerate the ripening and senescence processes in plants. It also decreases the fruit's susceptibility to pathogens with a net reduction in post-harvest life.13 Therefore, ethylene inhibition or its

removal should be used to maintain post-harvest quality. One tool for ethylene removal is the absorber sachet, which contains a zeolite compound. Zeolites are volcanic aluminosilicate crystalline materials. They have been used in many applications' areas because of their cation exchange properties and open-porous structures (Suslow, 1997)[4]. Various researchers have reported that ethylene absorbers can extend the shelf life by decreasing the ripening of various items of produce (Amarante and Steffens, 2009) [5].

Oxygen scavengers are well known and most commonly used technology nowadays in active packaging. Oxygen scavengers slow down food deterioration by preventing the growth of microorganisms and slowing oxidation reactions. Therefore, oxygen scavengers might have better utilization on oxygen sensitive fruit and vegetables (Charles *et al*., 2006) [6]. Several studies have been published explaining the effect of oxygen absorber on the quality of fruit and vegetables. Charles *et al.* (2008) [7] showed that oxygen scavenger reduces the transient period to 50% which led to control of browning in fresh endives. Tarr and Clingeleffer (2005) [8] demonstrated that oxygen absorber in the package of dried wine fruit minimized the colour change. According to Charles *et al.* (2003) [9] oxygen absorbers slow down the accumulation of CO2 and reduce the transient period of tomato during storage. Thus, the main objective of this research was to evaluate the potential effects of ethylene and oxygen absorber sachet systems combined with packaging treatments (with and without perforations) in preserving the quality of fresh peach fruits during storage under refrigerated conditions.

Materials and methods

The peach fruits of cultivar Shan-e-Punjab were harvested at physiologically mature, i.e. colour break stage from the Research orchards of Division of Fruit Science, Faculty of Agriculture, SKUAST – J, Udheywalla campus. The bruised and diseased fruits were sorted out and only healthy and uniform sized fruits were selected for the study. The selected fruits were washed by treating with chlorine solution (200 ppm) for 10 minutes and were then air dried for further use. The air dried peach fruits were divided into seven lots containing 40 fruits with three replications each. The desired numbers of fruits were placed on thermocol trays and were wrapped with polypropylene (PP) and low density polyethylene (LDPE) bags, respectively. Inside each tray a sachet of ethylene absorber (Freppe ™) and oxygen absorber (O- buster ™) were kept and control with no sachets. For ventilation, on the basis of area of packaging material, 4 and 8 pin hole perforations (diameter 0.3mm) each were made which were equally distributed on the film surface. The packaged samples were stored under refrigerated conditions (4-7^{0}C) for 28 days and observations for various physico - chemical parameters were recorded at an interval of 7 days. The recorded data were subjected to statistical analysis by adopting factorial CRD.

Sugars

Sugars were determined by Lane and Eyon method (AOAC, 1995) [10] and expressed in per cent. For reducing sugars twenty five gram of fruit pulp was thoroughly homogenized with distilled water and volume made upto 250 ml with distilled water. To this 10 ml of saturated lead acetate (45%) was added and then precipitates were filtered into a flask containing 10 ml of potassium oxalate (22%). The filtrate was shaken and refiltered. 100 ml of this deleaded and clarified solution was taken and hydrolyzed by adding 5 ml of concentrated HCl and kept overnight for estimation of total sugars. Boiling mixture containing five ml each of Fehling A and Fehling B solution was titrated against unhydrolysed but deleaded and clarified aliquot using methylene blue as indicator. The end point was marked by the appearance of brick red colour. Volume of aliquot used was noted and the reducing sugars were calculated as per the procedures described in AOAC (1995) [10].

For estimation of total sugars the excess of HCl in aliquot was neutralized by adding NaOH. Boiling mixture of 5 ml each of Fehling A and Fehling B solution was titrated against hydrolyzed aliquot, using methylene blue as indicator. The end point was marked by the appearance of brick red colour. Total volume of aliquot used was noted and the total sugars were calculated by procedure described in AOAC (1995) [10].

Sensory evaluation

Samples were evaluated on the basis of colour, flavour (taste + aroma) and texture by semi-trained panel of 7-8 judges by using 9 point hedonic scale assigning scores 9- like extremely to 1- dislike extremely. A score of 5.5 and above was considered acceptable (Amerine *et al*., 1965) [11].

Total plate count

Total plate count of micro-organisms was done according to method given by Palczar and Chan, 1991) [12]. 1:10 dilution was prepared by mixing 1 ml of sample in 9 ml of sterile water and homogenised for 1 minute and followed the serial dilution upto 10^4. An amount of about 15 ml cooled media was poured into pre-sterilized petri-dishes and allowed to solidify. Pouring was done in front of laminar air flow to minimise chances of microbial contamination. After solidification, the media was inoculated by spreading 1 ml of sample from 10^4 dilution and plates were incubated in inverted positions for 48 hours at 37±1 ^{0}C. After incubation the colonies were counted using colony counterNo. of viable organisms (cfu /g) = Average no. of colonies × dilution factor

Results and discussion

The maximum mean reducing sugar content of 3.17 in polypropylene and 3.10 in low density polyethylene (Table 1) were observed in T_1 (control) whereas, lowest reducing sugar content of 2.80 per cent in polypropylene and 2.71 per cent in low density polyethylene were observed in treatment T_3 (ethylene absorber + 4 perforations). The mean reducing sugar content increased from 2.38 to 3.73 per cent upto 21 days of storage and thereafter decreased to 2.82 per cent after 28 days of storage in polypropylene bags. In low density polyethylene bags the reducing sugar content increased from 2.32 to 3.65 per cent after 21 days of storage and further decreased to 2.76 per cent after 28 days of storage. The progressive increase in reducing sugar during storage upto 21 days and a decline thereafter might be due to hydrolysis of polysaccharides and concentration of juice as a result of dehydration. However, on complete hydrolysis of starch, no further increase in sugar occurred and consequently a decline in reducing sugar is predictable as they are primary substrates for respiration (Wills *et al*., 1980) [13]. Similar results have been reported by Kaur *et al*. (2013) [14] in pear fruits.

The higher mean total sugar content of 8.36 per cent in polypropylene and 8.24 per cent in low density polyethylene (Table 2) were observed in T_1 (control) whereas, the lowest mean total sugar content of 7.68 per cent in polypropylene and 7.54 per cent in low density polyethylene were observed in treatment T_3 (ethylene absorber + 4 perforations). The delayed increase in the sugar in treatment T_3 (ethylene absorber + 4 perforations) might be due to the delay in metabolic activities of fruit during storage (Abeles *et al*., 1992) [15]. The total sugar content increased with the advancement of storage period from 7.60 to 8.44 per cent in polypropylene upto 21 days of storage and thereafter decreased to 7.84 per cent after 28 days of storage. Similar increase in total sugar from 7.53 to 8.29 was observed in low density polyethylene bags upto 21 days which further decreased to 7.65 per cent after 28 days of storage. The observed increment in the less amount of sugar could be due to the conversion of starch to sugar as ripening progresses with decline after attaining certain peak as fruits enter senescence stage which is in agreement with reports of Pongener *et al*. (2011) [16].

It is famous that consumers eat with their eyes and major quality attribute of fruits is its colour. The colour scores were observed to be higher in polypropylene than low density polyethylene (Table 3). Among treatments, T_3 (ethylene absorber +4 perforations) recorded highest scores for colour 7.35 in polypropylene and 7.16 in low density polyethylene whereas, T_1 (control) recorded lowest scores of 7.05 in polypropylene and 6.88 in low density polyethylene. Sensory colour scores increased with advancement in storage period upto 21 days and thereafter decreased. The loss in green colour was the most obvious change which probably might be due to the physico-chemical changes associated with the degradation of chlorophyll during storage (Rathore *et al*., 2007) [17]. Fruits packed in non-perforated packaging material had lower sensory colour scores which may be due to poor gaseous exchange in fruits kept in non-perforated packaging (Gill *et al*., 2015) [18].

Peach flavour depends on a delicate balance of sugar, acids, phenolics and aromatic compounds with the number of additional factors such as pulp texture and visual appearance which also influence the perceived quality, consumer acceptance and appreciation (Predieri *et al*., 2006). In case of flavour highest mean scores were recorded in T_3 (ethylene absorber + 4 perforations) [19] 8.18 in polypropylene and 8.13 in low density polyethylene followed by T_4 (ethylene absorber + 8 perforation) having scores of 8.08 in polypropylene and 8.01 in low density polyethylene (Table 4). The higher flavour scores in T_3 (ethylene absorber + 4 perforation) might be due to the ability of the packaging conditions to retain the desirable gaseous atmosphere inside the package which is responsible for maintaining the flavour of the fruits (Nanda *et al*., 2001)[20] whereas, T_1 (control) recorded lowest scores of flavour in both polypropylene and low density polyethylene. Results revealed that flavour scores increased upto 21 days and then decreased in both the packaging materials. The gradual increase in the flavour score of peach fruit during storage has been attributed to the increase in concentration of total volatiles and esters, with compounds ethyl butanoate, ethyl hexanoate and ethylene heptanoate contributing to the typical peach aroma (Yang *et al*., 2009) [21]. Similar results have been reported by Mahajan *et al*. (2015) [22] in peach fruits. Texture is one of the important quality attribute in sensory evaluation, which plays an important role at the time of selection of fruit by the consumer. Pectic substances are structural polysaccharides responsible for firmness of fruits and softening of fruits occur when these pectin polymers becomes less tightly bound in cell wall during ripening (Kudachikar *et al*., 2001) [23].Among packaging, polypropylene observed higher texture scores than low density polyethylene. Treatment T_3 (ethylene absorber + 4 perforations) recorded maximum mean texture scores of 7.41 in polypropylene and 7.27 in low density polyethylene whereas, T_1 (control) recorded the lowest scores of 7.22 in polypropylene and 6.92 in low density polyethylene (Table 5).. The texture scores increased and then decreased with progression in storage period. The reduction in texture scores during storage might be due to degradation of pectic substances which is related to the fruits (Wills *et al*., 1989) [24]. Similar results have been reported by Mahajan *et al.* (2015) [22] while studying the quality of peach under super and ordinary market conditions.

No signs of microbial growth were observed upto 7 days of storage in both polypropylene and low density polyethylene (Table 6). After 14 days of storage, the highest total plate count of 1.48×10^4 CFU per g in polypropylene and 1.64×10^4 CFU per g in low density polyethylene were observed in treatment T_1 (control). The total plate count increased with the progression of storage period in both packaging materials. After 28 days of storage the highest total plate count of 4.29×10^4 in polypropylene and 5.00×10^4 CFU per g in low density polyethylene were observed in T_1 (control) which might be due to the accumulation of excessive water vapour inside the packaging because of the restricted movement of water through the film (Mahajan *et al*., 2015) [22]. Among packaging the microbial count was observed to be higher in fruits packed in non-perforated films as compared to fruits packed in perforated films. This might be due to condensation of water on surface of fruits, anaerobic conditions and breakdown of enzymes during storage which encourages the multiplication of microflora (Kaur *et al*., 2014) [25]. Singh *et al.* (2012) [26] also reported that packaging of pear fruits in low density polyethylene bags resulted in development of higher spoilage during storage.

Table 1: Effect of treatment and packaging on reducing sugar (%) in peach during refrigerated storage

Treatment	**Packaging**									
	Polypropylene (PP)					**Low Density polyethylene (LDPE)**				
	Storage period (Days)					**Storage period (Days)**				
	7	14	21	28	Mean	7	14	21	28	Mean
T_1 (Control)	2.48	3.16	3.98	3.07	3.17	2.40	3.09	3.90	3.00	3.10
T_2 (Ethylene absorber + 0 perforation)	2.31	2.88	3.55	2.62	2.84	2.27	2.80	3.49	2.56	2.78
T_3 (Ethylene absorber + 4 perforations)	2.28	2.78	3.52	2.60	2.80	2.20	2.71	3.45	2.48	2.71
T_4 (Ethylene absorber + 8 perforations)	2.37	2.89	3.66	2.73	2.91	2.31	2.82	3.57	2.64	2.84
T_5 (Oxygen absorber + 0 perforation)	2.40	3.02	3.80	2.90	3.03	2.35	2.96	3.72	2.89	2.98
T_6 (Oxygen absorber + 4 perforations)	2.39	2.99	3.77	2.83	3.00	2.33	2.87	3.69	2.79	2.92
T_7 (Oxygen absorber + 8 perforations)	2.45	3.09	3.84	2.97	3.09	2.39	3.02	3.76	2.95	3.03
Mean	2.38	2.97	3.73	2.82		2.32	2.90	3.65	2.76	
Initial value (0 day) = 1.75 C.D.(p = 0.05) Packaging (A) = 0.02 A x B = N.SStorage (B) = 0.03Treatment (C) = 0.03 A x C = N.A x B x C = N.S										

Table 2: Effect of treatment and packaging on total sugar (%) in peach during refrigerated storage

Treatment	Packaging									
	Polypropylene (PP)					Low Density polyethylene (LDPE)				
	Storage period (Days)					Storage period (Days)				
	7	14	21	28	Mean	7	14	21	28	Mean
T_1 (Control)	7.83	8.56	8.89	8.15	8.36	7.72	8.43	8.76	8.05	8.24
T_2 (Ethylene absorber + 0 perforation)	7.48	7.90	8.18	7.60	7.79	7.45	7.79	8.06	7.48	7.70
T_3 (Ethylene absorber + 4 perforations)	7.39	7.73	8.06	7.52	7.68	7.36	7.57	7.91	7.33	7.54
T_4 (Ethylene absorber + 8 perforations)	7.54	8.15	8.30	7.74	7.93	7.47	8.04	8.22	7.59	7.83
T_5 (Oxygen absorber + 0 perforation)	7.63	8.27	8.56	8.03	8.12	7.55	8.15	8.41	7.67	7.95
T_6 (Oxygen absorber + 4 perforations)	7.61	8.23	8.39	7.76	8.00	7.53	8.10	8.26	7.64	7.88
T_7 (Oxygen absorber + 8 perforations)	7.75	8.46	8.72	8.09	8.26	7.64	8.30	8.43	7.80	8.04
Mean	7.60	8.19	8.44	7.84		7.53	8.05	8.29	7.65	
Initial value (0 day) = 6.98C.D. (p = 0.05) Packaging (A) = 0.01 A x B = N.SStorage (B) = 0.02 B x C = 0.0Treatment C) = 0.01 A x C = N.A x B x C = N.S										

Table 3: Effect of treatment and packaging on mean score evaluation of colour (hedonic score) in peach during refrigerated storage

Treatment	Packaging									
	Polypropylene (PP)					Low Density polyethylene (LDPE)				
	Storage period (Days)					Storage period (Days)				
	7	14	21	28	Mean	7	14	21	28	Mean
T_1 (Control)	6.49	7.01	7.45	7.23	7.05	6.36	6.89	7.28	6.97	6.88
T_2 (Ethylene absorber + 0 perforation)	6.59	7.10	7.56	7.45	7.18	6.47	6.99	7.43	7.18	7.02
T_3 (Ethylene absorber + 4 perforations)	6.71	7.25	7.79	7.64	7.35	6.59	7.15	7.56	7.35	7.16
T_4 (Ethylene absorber + 8 perforations)	6.65	7.19	7.69	7.57	7.28	6.54	7.10	7.53	7.28	7.11
T_5 (Oxygen absorber + 0 perforation)	6.53	7.03	7.50	7.32	7.10	6.40	6.93	7.33	7.03	6.92
T_6 (Oxygen absorber + 4 perforations)	6.62	7.17	7.62	7.50	7.23	6.51	6.92	7.50	7.24	7.04
T_7 (Oxygen absorber + 8 perforations)	6.55	7.07	7.53	7.36	7.13	6.44	6.95	7.36	7.11	6.97
Mean	6.59	7.12	7.59	7.44		6.47	6.99	7.43	7.17	
Initial value (0 day) = 6.20(p = 0.05) Packaging (A) = 0.01 A x B= 0.03Storage (B) = 0.02 B x C = 0.05Treatment (C) = 0.02 A x C = N.SA x B x C = 0.07										

Table 4: Effect of treatment and packaging on mean score evaluation of flavour (hedonic score) in peach during refrigerated storage

Treatment	Packaging									
	Polypropylene (PP)					Low Density polyethylene (LDPE)				
	Storage period (Days)					Storage period (Days)				
	7	14	21	28	Mean	7	14	21	28	Mean
T_1 (Control)	7.21	7.39	7.60	7.10	7.33	7.13	7.22	7.45	6.85	7.16
T_2 (Ethylene absorber + 0 perforation)	7.60	7.81	8.32	8.15	7.97	7.50	7.84	8.23	8.05	7.91
T_3 (Ethylene absorber + 4 perforations)	7.87	8.07	8.44	8.35	8.18	7.83	8.01	8.38	8.31	8.13
T_4 (Ethylene absorber + 8 perforations)	7.75	7.98	8.38	8.21	8.08	7.68	7.94	8.27	8.13	8.01
T_5 (Oxygen absorber + 0 perforation)	7.24	7.63	8.15	8.02	7.76	7.16	7.59	8.07	7.82	7.66
T_6 (Oxygen absorber + 4 perforations)	7.49	7.75	8.31	8.12	7.92	7.40	7.79	8.24	8.07	7.88
T_7 (Oxygen absorber + 8 perforations)	7.40	7.65	8.27	8.08	7.85	7.34	7.75	8.18	8.00	7.82
Mean	7.51	7.75	8.14	8.08		7.43	7.73	8.12	7.89	
Initial value (0 day) = 7.10 C.D. (p = 0.05) Packaging (A) = 0.02 A x B 0.05Treatment (C) = 02 A x C N.SA x B x C = 0.08										

Table 5: Effect of treatment and packaging on mean score evaluation of texture (hedonic score) in peach during refrigerated storage

Treatment	Packaging									
	Polypropylene (PP)					Low Density polyethylene (LDPE)				
	Storage period (Days)					Storage period (Days)				
	7	14	21	28	Mean	7	14	21	28	Mean
T_1 (Control)	7.40	7.47	7.12	6.87	7.22	7.12	7.24	6.71	6.62	6.92
T_2 (Ethylene absorber + 0 perforation)	7.59	7.60	7.20	6.92	7.33	7.16	7.35	7.15	6.86	7.13
T_3 (Ethylene absorber + 4 perforations)	7.66	7.70	7.27	7.02	7.41	7.39	7.50	7.21	6.98	7.27
T_4 (Ethylene absorber + 8 perforations)	7.62	7.65	7.22	6.98	7.37	7.27	7.46	7.19	6.95	7.22
T_5 (Oxygen absorber + 0 perforation)	7.42	7.50	7.13	6.88	7.23	7.15	7.26	6.84	6.61	6.97
T_6 (Oxygen absorber + 4 perforations)	7.55	7.57	7.19	6.96	7.32	7.23	7.33	7.00	6.80	7.09
T_7 (Oxygen absorber + 8 perforations)	7.47	7.53	7.16	6.93	7.27	7.19	7.29	6.92	6.73	7.03
Mean	7.53	7.57	7.18	6.94		7.22	7.35	7.00	6.79	
Initial value (0 day) = 6.95.D. (p = 0.05) Packaging (A) = 0.02 A x B = 0.05 Storage (B) = 0.03 B x C = 0.07Treatment C) = 0.03A x C = 0.04A x B x C = 0.10										

Table 6: Effect of treatment and packaging on total plate count (x 10^4 CFU/g) in peach during refrigerated storage

Treatment	Packaging									
	Polypropylene (PP)					Low Density polyethylene (LDPE)				
	Storage period (Days)					Storage period (Days)				
	7	14	21	28	Mean	7	14	21	28	Mean
T_1 (Control)	N.D	1.48	3.40	4.29	2.29	N.D	1.64	3.51	5.00	2.54
T_2 (Ethylene absorber + 0 perforation)	N.D	1.13	2.35	3.67	1.79	N.D	1.18	2.72	3.75	1.91
T_3 (Ethylene absorber + 4 perforations)	N.D	1.00	1.92	2.58	1.38	N.D	1.06	2.17	2.89	1.53
T_4 (Ethylene absorber + 8 perforations)	N.D	1.08	2.02	2.84	1.49	N.D	1.12	2.57	3.63	1.83
T_5 (Oxygen absorber + 0 perforation)	N.D	1.30	2.48	3.82	1.90	N.D	1.35	2.92	4.14	2.10
T_6 (Oxygen absorber + 4 perforations)	N.D	1.12	2.16	3.25	1.63	N.D	1.20	2.43	3.61	1.81
T_7 (Oxygen absorber + 8 perforations)	N.D	1.20	2.40	3.81	1.85	N.D	1.26	2.78	3.87	1.98
Mean	N.D	1.19	2.39	3.47		N.D	1.26	2.73	3.84	

Initial value (0 day) = N.DC.D. (p = 0.05) Packaging (A) = 0.19 x B = N.SStorage (B) = 0.36 B x C= 0.72Treatment (C) = N.S A x C = N.SA x B x C = N.S

Conclusion

This study investigated the effectiveness of ethylene and oxygen absorbers along with packaging materials (PP and LDPE with and without perforations) to maintain the quality attributes of fresh peach fruits. Ethylene absorbers were effective in preserving quality. According to the results obtained, fruits packed in polypropylene bags with treatment T_3 (ethylene absorber + 4 perforations) was rated best by maintaining the quality parameters of peach fruits. However, customer acceptability must be taken into account when designing these packages.

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