



ISSN (E): 2277- 7695

ISSN (P): 2349-8242

NAAS Rating: 5.03

TPI 2018; 7(10): 25-29

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www.thepharmajournal.com

Received: 18-08-2018

Accepted: 19-09-2018

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## Formulation and evaluation of phalsa-pear blended beverage

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### Abstract

The present investigation was carried in Division of Food Science and Technology, SKUAST Jammu during the year 2015-2016. In the present study, phalsa pulp and pear juice were blended in the ratio of 100:00, 95:05, 90:10, 85:15, 80:20, 75:25, 70:30, 65:35, 60:40, 55:45 and 50:50 for the preparation of crush as per FPO specifications. The processed products were stored at ambient conditions and subjected to physico-chemical and sensory evaluation at an interval of one month for a period of three months. However, with the advancement of storage an increasing trend was observed in TSS but decreasing trend in ascorbic acid, anthocyanin and phosphorous content during three months of storage. The blended crush prepared from the treatment T5 (80:20:: phalsa: pear) was adjudged the best on the basis of sensory attributes by scoring 7.50, 7.11, 7.32 and 7.35 for colour, body, aroma and taste respectively.

**Keywords:** phalsa, pear, blend, beverages, crush

### Introduction

Phalsa (*Grewia subinaequalis* L.) is a minor fruit of Indian origin and is very well known for its medicinal properties. The plants of phalsa are small, bushy and can tolerate temperature as high as 45 °C and also freezing temperature for few days. Phalsa is often grown in marginal lands close to the city markets to facilitate prompt marketing of fruit. In cultivated form, it is commonly grown in states Uttar Pradesh, Madhya Pradesh, Punjab, Haryana, Maharashtra, Bihar, West Bengal, Gujarat and Andhra Pradesh. In Jammu and Kashmir State, it is not cultivated commercially but grown in *kandi* and dry land areas of Kathua, Samba, Jammu, Udhampur, Rajouri and Reasi districts. When ripened, the fruit skin colour turns from light green to cherry red or purplish red and finally becoming dark purple or nearly black. The delicate, fibrous flesh is greenish-white in colour, becoming purplish-red from seed reaching near the skin. The fruits are highly perishable in nature and due to its perishability it cannot be transported easily to other places but its processed products are very appreciable. Ripe fruits are consumed fresh in deserts, or processed into refreshing soft drinks like squash, RTS, Sherbet *etc.* which are enjoyed during hot summer months in India. The fruit is astringent and stomachic. When unripe, it alleviates inflammation and is administered in respiratory, cardiac and blood disorders, as well as in fever. Pear (*Pyrus pyrifolia*) is one of the superior temperate fruits having good taste, flavour and textural properties. In India, pear is largely grown for consumption as fresh fruit, while in other countries it is processed to a considerable extent. Pear is a good source of pectin and also contains appreciable amounts of sugar and thiamine. Pear fruit is helpful in maintaining acid base balance in human body. The utilization of the hard type of pear (*Patharnakh*) has not received much attention for processing so far. Thus blending of phalsa pulp and pear juice offers many opportunities to develop balanced health product high in quality with respect to both sensory and nutritional aspects.

### Materials and methods

Ripened fruits of Phalsa (*Grewia subinaequalis* L.) were procured from Raya Suchani area of district Samba, J&K and fruits of Pear (*Pyrus pyrifolia* L.) cv. *Patharnakh* were procured from revenue orchard of Advance Centre for Horticulture Research, Udheywalla, and SKUAST-Jammu. Both Phalsa and pear fruits were transported to pilot plant of Division of FST, SKUAST-J, Chatha for further processing. The diseased, defective and unripe fruits were sorted out and healthy ripe fruits were retained for extraction of pulp. The phalsa and the pear pulp/juice were blended with each other in different ratios for developing crush (Table 1).

**Table 1:** Detail of treatments

Treatment	Phalsa pulp	Pear juice
T <sub>1</sub>	100	00
T <sub>2</sub>	95	05
T <sub>3</sub>	90	10
T <sub>4</sub>	85	15
T <sub>5</sub>	80	20
T <sub>6</sub>	75	25
T <sub>7</sub>	70	30
T <sub>8</sub>	65	35
T <sub>9</sub>	60	40
T <sub>10</sub>	55	45
T <sub>11</sub>	50	50

The desired quantity of sugar and citric acid was added in warm water and the solution is strained of through muslin cloth. The solution is added in phalsa-pear blend so as to maintain its total soluble solids as 55 °Brix and acidity of 1 per cent. The crush prepared was filled in pre-sterilized glass bottle crown corked, processed for 30 min. in boiling water, cooled immediately, labeled and stored at room temperature. The blended crush was analyzed at various intervals of 0, 1, 2

and 3 months for physico-chemical and organoleptic evaluation.

## Results and discussion

### Total soluble solids

With an advancement of storage period, mean total soluble solids increased significantly from the initial level of 55 °Brix to 56.65 °Brix. After one month of storage, the highest TSS of 55.67 °Brix was recorded in treatment T<sub>1</sub> (100: 00::phalsa: pear) and after three months of storage, treatment T<sub>1</sub> registered the maximum total soluble solids of 56.92 °Brix followed by T<sub>2</sub>, T<sub>3</sub> and T<sub>4</sub> treatments having the corresponding values of 56.86, 56.79 and 56.76 °Brix, respectively. The interaction between treatments and storage period was also found significant (P=0.05) (Table 2). The possible reason for the increase in total soluble solids might be due to partial hydrolysis of complex carbohydrates to simple carbohydrate. Sharma (2012) [7] and Parakash *et al.* (2014) [4] reported similar increase in total soluble solids during storage of jamun-mango blended squash and phalsa squash, respectively.

**Table 2:** Effect of treatments and storage period on TSS (°Brix) of phalsa-pear blended crush

Treatments	Storage period (months)				Mean
	0	1	2	3	
T <sub>1</sub> (100:0::Phalsa:Pear)	55.00	55.67	56.90	56.92	56.12
T <sub>2</sub> (95:05::Phalsa:Pear)	55.00	55.51	56.82	56.86	56.04
T <sub>3</sub> (90:10::Phalsa:Pear)	55.00	55.46	56.73	56.79	55.99
T <sub>4</sub> (85:15::Phalsa:Pear)	55.00	55.44	55.70	56.76	55.72
T <sub>5</sub> (80:20::Phalsa:Pear)	55.00	55.40	55.62	56.72	55.68
T <sub>6</sub> (75:25::Phalsa:Pear)	55.00	55.32	55.50	56.69	55.62
T <sub>7</sub> (70:30::Phalsa:Pear)	55.00	55.28	55.46	56.62	55.59
T <sub>8</sub> (65:35::Phalsa:Pear)	55.00	55.27	55.40	56.61	55.57
T <sub>9</sub> (60:40::Phalsa:Pear)	55.00	55.23	55.35	56.49	55.51
T <sub>10</sub> (55:45::Phalsa:Pear)	55.00	55.21	55.32	56.40	55.48
T <sub>11</sub> (50:50::Phalsa:Pear)	55.00	55.15	55.29	56.39	55.45
Mean	55.00	55.35	55.82	56.65	

### Effects CD (P=0.05)

Treatments	0.11
Storage	0.19
Treatment X Storage	0.39

### Ascorbic acid

At beginning, the highest ascorbic acid content of 7.38 mg/100 ml was recorded in treatment T<sub>1</sub> (100:00: Phalsa: pear) and the lowest of 4.07 mg/100 ml was recorded in treatment T<sub>11</sub> (50:50: Phalsa: Pear). The ascorbic acid content decreased significantly during three months of storage. The highest treatment mean value of 7.32 mg/100 ml was recorded in treatment T<sub>1</sub> (100:00: Phalsa: pear) while as the treatment T<sub>11</sub> (50:50: Phalsa: pear) recorded the lowest ascorbic acid

content of 3.92 mg/100 ml. However, the interaction effects of treatment over storage period were found non-significant (P=0.05) (Table 3). The decrease in ascorbic acid content in storage might be due to oxidation by trapped oxygen in glass bottles and formation of dehydroascorbic acid, processing and temperature. Similar results were reported by Deka *et al.* (2005) [2] in mango and pine apple spiced beverage, Shafee (2007) [6] in strawberry crush and Prakash *et al.* (2014) [4] in phalsa squash.

**Table 3:** Effect of treatments and storage period on ascorbic acid (mg/100 ml) of phalsa-pear blended crush

Treatments	Storage period (months)				Mean
	0	1	2	3	
T <sub>1</sub> (100:0::Phalsa:Pear)	7.38	7.36	7.33	7.22	7.32
T <sub>2</sub> (95:05::Phalsa:Pear)	7.28	7.27	7.25	7.15	7.23
T <sub>3</sub> (90:10::Phalsa:Pear)	7.02	7.00	6.98	6.89	6.97
T <sub>4</sub> (85:15::Phalsa:Pear)	6.94	6.91	6.89	6.84	6.89
T <sub>5</sub> (80:20::Phalsa:Pear)	6.86	6.79	6.74	6.71	6.77
T <sub>6</sub> (75:25::Phalsa:Pear)	5.90	5.77	5.75	5.71	5.78
T <sub>7</sub> (70:30::Phalsa:Pear)	5.85	5.82	5.79	5.73	5.79
T <sub>8</sub> (65:35::Phalsa:Pear)	4.72	4.61	4.58	4.54	4.61
T <sub>9</sub> (60:40::Phalsa:Pear)	4.51	4.48	4.41	4.33	4.43

T <sub>10</sub> (55:45::Phalsa:Pear)	4.12	4.07	4.02	3.91	4.03
T <sub>11</sub> (50:50::Phalsa:Pear)	4.07	3.97	3.89	3.77	3.92
Mean	5.87	5.82	5.78	5.70	

<b>Effects</b>	<b>CD (P=0.05)</b>
Treatments	0.03
Storage	0.02
Treatment X Storage	NS

**Anthocyanins**

Anthocyanin content of all the treatments decreased during three months of storage. The mean values of anthocyanin content decreased significantly from 16.28 to 15.61 mg/100 ml. At one month of storage, treatment T<sub>1</sub> (100:00: Phalsa: pear) recorded highest anthocyanin content of 18.89 mg/100 ml followed by treatment T<sub>2</sub> (95:05: phalsa: pear) having anthocyanin content of 18.59 mg/100 ml. After three months of storage, treatment T<sub>1</sub> (100:00: Phalsa: pear) recorded the highest anthocyanin content of 17.91 mg/100 ml and the lowest value of 10.49 mg/100 ml in T<sub>11</sub> (50:50: Phalsa: pear). Moreover the interaction between the treatment and storage was also found significant (P=0.05). The anthocyanin content of blended phalsa crush decreased from the initial mean value of 16.28 to 15.61 mg/100 ml during three months of storage period. Maximum anthocyanin was recorded in treatment T<sub>1</sub> (100:00: phalsa: pear) while as minimum anthocyanin was found in treatment T<sub>11</sub> (50:50: phalsa: pear) (Table 4). These findings are in agreement with the results of Wasker and Khurdiya (1987) [10] in phalsa beverages, Shafee (2007) [6] in strawberry crush and Sharma (2012) [7] in value added products of jamun. Loss of anthocyanin in strawberry products during storage have been attributed to many factors or combinations of factors such as pH and acidity, phenolic compounds, sugar and sugar degradation products, oxygen and ascorbic acid (Abers and Worlstand, 1979) [1].

**Table 4:** Effect of treatments and storage period on anthocyanin (mg/100 ml) of phalsa-pear blended crush

Treatments	Storage period (months)				Mean
	0	1	2	3	
T <sub>1</sub> (100:0::Phalsa:Pear)	18.92	18.89	18.42	17.91	18.53
T <sub>2</sub> (95:05::Phalsa:Pear)	18.62	18.59	18.31	17.88	18.35
T <sub>3</sub> (90:10::Phalsa:Pear)	18.43	18.41	18.3	17.89	18.25
T <sub>4</sub> (85:15::Phalsa:Pear)	18.39	18.38	18.29	17.85	18.22
T <sub>5</sub> (80:20::Phalsa:Pear)	17.37	17.37	17.28	17.24	17.31
T <sub>6</sub> (75:25::Phalsa:Pear)	17.22	17.18	17.06	16.92	17.09
T <sub>7</sub> (70:30::Phalsa:Pear)	16.18	16.17	16.03	15.96	16.08
T <sub>8</sub> (65:35::Phalsa:Pear)	15.17	15.16	15.09	14.76	15.04
T <sub>9</sub> (60:40::Phalsa:Pear)	15.13	15.1	15.01	14.64	14.97
T <sub>10</sub> (55:45::Phalsa:Pear)	12.92	10.91	10.77	10.27	11.21
T <sub>11</sub> (50:50::Phalsa:Pear)	10.75	10.71	10.61	10.49	10.64
Mean	16.28	16.07	15.92	15.61	

<b>Effects</b>	<b>CD (P=0.05)</b>
Treatments	0.02
Storage	0.01
Treatment X Storage	0.05

**Phosphorous**

After three months of storage, maximum phosphorous content of 6.80 mg/100 ml was recorded in treatment T<sub>1</sub> (100:00: Phalsa: pear) and minimum of 6.08 mg/100 ml in T<sub>11</sub> (50:50: phalsa: pear). During storage period of three months the mean phosphorous content decreased significantly from 6.47 to 6.40

mg/100 ml. However, on comparing the storage means with each other the value of phosphorous content were found to be at par (P=0.05) (Table 5). Vidhya and Narain (2010) [9] while developing preserved products (Jam and fruit bar) from wood apple reported that there was a loss of phosphorous to the extent of 3.12, 5.11 and 8.80 per cent in jam and 3.36, 5.81 and 10.7 per cent in fruit bar on 30, 60 and 90 days of storage, respectively.

**Table 5:** Effect of treatments and storage period on phosphorous content (mg/100 ml) of phalsa-pear blended crush

Treatments	Storage period (months)				Mean
	0	1	2	3	
T <sub>1</sub> (100:0::Ps:Pr)	6.87	6.84	6.81	6.80	6.83
T <sub>2</sub> (95:05::Ps:Pr)	6.79	6.78	6.76	6.75	6.77
T <sub>3</sub> (90:10::Ps:Pr)	6.63	6.60	6.58	6.56	6.59
T <sub>4</sub> (85:15::Ps:Pr)	6.57	6.55	6.52	6.50	6.53
T <sub>5</sub> (80:20::Ps:Pr)	6.51	6.49	6.47	6.46	6.48
T <sub>6</sub> (75:25::Ps:Pr)	6.42	6.41	6.39	6.38	6.40
T <sub>7</sub> (70:30::Ps:Pr)	6.39	6.37	6.34	6.33	6.35
T <sub>8</sub> (65:35::Ps:Pr)	6.36	6.34	6.29	6.28	6.31
T <sub>9</sub> (60:40::Ps:Pr)	6.26	6.22	6.21	6.20	6.22
T <sub>10</sub> (55:45::Ps:Pr)	6.21	6.19	6.17	6.16	6.18
T <sub>11</sub> (50:50::Ps:Pr)	6.16	6.12	6.09	6.08	6.11
Mean	6.47	6.44	6.42	6.40	

<b>Effects</b>	<b>CD (P=0.05)</b>
Treatments	0.02
Storage	0.03
Treatment X Storage	NS

**Colour**

Significant colour changes were observed during three months of storage. The scores showed a general decrease during storage (Table 6). After one month of storage, maximum and the minimum colour scores were recorded in treatment T<sub>5</sub> (80:20: phalsa: pear) and T<sub>11</sub> (50:50: Phalsa: pear), having values of 7.64 and 6.02, respectively. While as in storage period of three months, the maximum and minimum colour score was recorded by T<sub>5</sub> (80:20: phalsa: pear) and T<sub>11</sub> (50:50: Phalsa: pear), having values of 7.12 and 5.54, respectively. On assessing the mean score evaluation of colour declined slightly during three months of storage period. All treatments of blended crush were differed significantly with each other (P=0.05). The score for colour of phalsa-pear blended crush during storage ranged from 7.08 to 6.60. The maximum score for colour was observed in the samples of T<sub>5</sub> (80:20: phalsa: pear), whereas the minimum was observed in the samples of T<sub>11</sub> (50:50: phalsa: pear). Loss of colour during storage was due to break down of pigments and oxidative loss of pigments. Similar findings were reported by Wasker and Khurdiya (1987) [10] in phalsa squash and nectar, Shafee (2007) [6] in strawberry crush, and Sharma (2012) [7] in jamun-mango blended squash.

**Table 6:** Effect of treatments and storage period on colour of phalsa-pear blended crush

Treatments	Storage period (months)				Mean
	0	1	2	3	
T <sub>1</sub> (100:0::Phalsa:Pear)	7.53	7.22	7.12	7.02	7.22
T <sub>2</sub> (95:05::Phalsa:Pear)	7.45	7.22	7.10	7.01	7.19
T <sub>3</sub> (90:10::Phalsa:Pear)	7.41	7.12	7.01	6.96	7.12
T <sub>4</sub> (85:15::Phalsa:Pear)	7.38	7.09	6.87	6.67	7.00
T <sub>5</sub> (80:20::Phalsa:Pear)	7.72	7.64	7.53	7.12	7.50
T <sub>6</sub> (75:25::Phalsa:Pear)	7.31	7.25	7.17	7.08	7.20
T <sub>7</sub> (70:30::Phalsa:Pear)	7.04	6.67	6.58	6.46	6.68
T <sub>8</sub> (65:35::Phalsa:Pear)	6.93	6.67	6.57	6.44	6.65
T <sub>9</sub> (60:40::Phalsa:Pear)	6.65	6.57	6.45	6.32	6.49
T <sub>10</sub> (55:45::Phalsa:Pear)	6.44	6.23	6.13	6.06	6.21
T <sub>11</sub> (50:50::Phalsa:Pear)	6.12	6.02	6.00	5.54	5.92
Mean	7.08	6.88	6.77	6.60	

Effects CD (P=0.05)

Treatments	0.03
Storage	0.01
Treatment X Storage	0.06

### Body

A decreasing trend has been observed in body score during storage life of blended crush (Table 7). On first schedule of analysis after one month, blended crush treatment T<sub>5</sub> (80:20: phalsa: pear) received the highest score of 7.22 which declined to 7.12 after two months of storage and 6.98 after three months of storage and was adjudged to have the best body, and treatment T<sub>11</sub> (50:50: phalsa: pear) have the lowest score of 6.02 which declined to 5.87 after two months and 5.67 after three months of storage. The interaction effect of

treatment and storage period was found to differ significantly (P=0.05). The body scores of different treatments decreased during storage from the initial mean levels of 6.85 to 6.27 during three months of storage. Reduction in body scores with the advancement of storage might be attributed to the degradation of pectin materials present in the fruits and also due to moisture pick up by the products. Similar results were reported by Punam *et al.* (2012) [5] in body scores of bael-mango ready to serve drink and squash.

**Table 7:** Effect of treatments and storage period on body of phalsa-pear blended crush

Treatments	Storage period (months)				Mean
	0	1	2	3	
T <sub>1</sub> (100:0::Phalsa:Pear)	6.79	6.55	6.45	6.32	6.52
T <sub>2</sub> (95:05::Phalsa:Pear)	6.87	6.76	6.66	6.34	6.65
T <sub>3</sub> (90:10::Phalsa:Pear)	6.95	6.85	6.66	6.43	6.72
T <sub>4</sub> (85:15::Phalsa:Pear)	6.98	6.81	6.77	6.52	6.77
T <sub>5</sub> (80:20::Phalsa:Pear)	7.34	7.22	7.12	6.98	7.11
T <sub>6</sub> (75:25::Phalsa:Pear)	7.29	7.10	7.07	6.08	6.94
T <sub>7</sub> (70:30::Phalsa:Pear)	7.21	7.01	6.84	6.42	6.87
T <sub>8</sub> (65:35::Phalsa:Pear)	6.99	6.63	6.58	6.12	6.58
T <sub>9</sub> (60:40::Phalsa:Pear)	6.65	6.65	6.42	6.21	6.48
T <sub>10</sub> (55:45::Phalsa:Pear)	6.23	6.12	6.01	5.97	6.08
T <sub>11</sub> (50:50::Phalsa:Pear)	6.12	6.02	5.87	5.67	5.92
Mean	6.85	6.70	6.58	6.27	

Effects CD (P=0.05)

Treatments	0.03
Storage	0.02
Treatment X Storage	0.06

### Aroma

Sensory scores for this attribute ranged from 7.45 to 6.07 at initial day of storage. There was a significant decrease in score during storage period of one month, however the maximum score of 7.36 was recorded in treatment T<sub>5</sub> (80:20: phalsa: pear) followed by 7.04 in T<sub>6</sub> (75:35: phalsa: pear). After three months of storage period, highest score of 7.16 was recorded T<sub>5</sub> (80:20: phalsa: pear) and lowest of 5.57 was recorded in T<sub>11</sub> (50:50: Phalsa: pear) and highest mean score

of 7.32 was registered in T<sub>5</sub> (80:20: phalsa: pear) and lowest of 5.79 in T<sub>11</sub> (50:50: Phalsa: pear). The data of interaction between treatments and storage period attained the level of significance in respect of aroma of blended crush (Table 8). The results are in accordance with the Krishnaveni *et al.* (2001) [3] in pomegranate squash, Sogi and Singh (2001) [8] in kinnow squash and Sharma (2012) [7] in jamun-mango blended squash.

**Table 8:** Effect of treatments and storage period on aroma of phalsa-pear blended crush

Treatments	Storage period (months)				Mean
	0	1	2	3	
T <sub>1</sub> (100:0::Phalsa:Pear)	6.82	6.71	6.53	6.12	6.54
T <sub>2</sub> (95:05::Phalsa:Pear)	6.79	6.61	6.44	6.21	6.51
T <sub>3</sub> (90:10::Phalsa:Pear)	6.87	6.71	6.31	6.27	6.54
T <sub>4</sub> (85:15::Phalsa:Pear)	6.53	6.43	6.21	6.12	6.31
T <sub>5</sub> (80:20::Phalsa:Pear)	7.45	7.36	7.27	7.16	7.32
T <sub>6</sub> (75:25::Phalsa:Pear)	7.19	7.04	6.87	6.67	6.92
T <sub>7</sub> (70:30::Phalsa:Pear)	7.11	7.01	6.87	6.64	6.90
T <sub>8</sub> (65:35::Phalsa:Pear)	7.12	7.01	6.76	6.66	6.88
T <sub>9</sub> (60:40::Phalsa:Pear)	6.45	6.23	6.21	6.11	6.25
T <sub>10</sub> (55:45::Phalsa:Pear)	6.12	6.09	5.86	5.55	5.93
T <sub>11</sub> (50:50::Phalsa:Pear)	6.07	5.87	5.66	5.57	5.79
Mean	6.77	6.64	6.45	6.28	

<b>Effects</b>	<b>CD (P=0.05)</b>
Treatments	0.03
Storage	0.02
Treatment X Storage	0.06

**Taste**

The data revealed that treatment T<sub>5</sub> (80:20: phalsa: pear) ranked first on the basis of taste having mean score of 7.35 while T<sub>11</sub> (50:50: phalsa: pear) gained the lowest mean score of 6.59 (Table 9). It also revealed a gradual decrease in taste of crush during storage. The effect of interaction between treatment and storage period was found to be non-significant (P=0.05). The results showed a loss of taste which might be due to the degradation of ascorbic acid and furfural production, Similar observations of decrease in taste score was also reported by Zambare *et al.* (2009) [11] in wood apple RTS beverage.

**Table 9:** Effect of treatments and storage period on taste of phalsa-pear blended crush

Treatments	Storage period (months)				Mean
	0	1	2	3	
T <sub>1</sub> (100:0::Phalsa:Pear)	6.82	6.79	6.72	6.62	6.73
T <sub>2</sub> (95:05::Phalsa:Pear)	6.91	6.88	6.84	6.72	6.83
T <sub>3</sub> (90:10::Phalsa:Pear)	7.06	6.96	6.93	6.83	6.94
T <sub>4</sub> (85:15::Phalsa:Pear)	7.32	7.29	7.27	7.14	7.25
T <sub>5</sub> (80:20::Phalsa:Pear)	7.44	7.41	7.34	7.23	7.35
T <sub>6</sub> (75:25::Phalsa:Pear)	7.35	7.33	7.31	7.20	7.29
T <sub>7</sub> (70:30::Phalsa:Pear)	7.29	7.26	7.21	7.07	7.20
T <sub>8</sub> (65:35::Phalsa:Pear)	6.98	6.88	6.85	6.77	6.87
T <sub>9</sub> (60:40::Phalsa:Pear)	6.85	6.79	6.65	6.53	6.70
T <sub>10</sub> (55:45::Phalsa:Pear)	6.75	6.68	6.61	6.52	6.64
T <sub>11</sub> (50:50::Phalsa:Pear)	6.72	6.68	6.55	6.42	6.59
Mean	7.04	6.99	6.93	6.82	

<b>Effects</b>	<b>CD (P=0.05)</b>
Treatments	0.03
Storage	0.02
Treatment X Storage	NS

**Conclusion**

On the basis of sensory evaluation (colour, body, aroma and taste) treatment T<sub>5</sub> (80:20: phalsa: pear) was found to be the best treatment followed by treatment T<sub>6</sub> (75:25: phalsa: pear). The blended crush remained acceptable up to study period of 3 months at room temperature.

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