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Nutritional composition and quality evaluation of products prepared from wild apricot (*Prunus armeniaca*)

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Abstract
Underutilized/ minor fruits are the fruits which are neither cultivated nor grown in an organized farming system but they grow wildly. Wild apricot, an underutilized fruit of Himachal Pradesh was selected for the study. The fruit is cheap, highly nutritious and possesses great therapeutic value. Fruits are eaten by children and local people. The fruit is eaten in fresh as well as in dehydrated form. The aim of the study was to determine the nutritional composition and to develop food products (RTS beverage and chutney) from this fruit in combination with cultivated apricot fruit pulp in different ratios. The fruit contain good amounts of beta carotene, vitamin A and minerals. The TSS, acidity and reducing sugars in RTS beverage increased while pH, ascorbic acid and total sugars decreased with the increase of storage intervals. The prepared products were evaluated organoleptic ally to a panel of 10 members at different storage intervals and the products were acceptable even up to storage interval of 12 months at ambient conditions. The colour, taste, flavour and consistency of all the products were found to be good during storage interval of 12 months.

Keywords: wild apricot, nutritional composition, products, storage stability, organoleptic evaluation

Introduction
Prunus armeniaca is commonly known as *Chulli* mostly found in Kullu, Rampur, Pangi, Bharmour, Mandi, Kinnaur and Lahaul & Spiti districts of Himachal Pradesh. The fruit is cheap but highly nutritious and possesses great therapeutic value. Fruits are eaten by children and local people. The fruit is eaten in fresh as well as in dehydrated form. The kernel is utilized in the form of oil. The oil is used for the massage by the local people. The fruit is yellowish orange in colour. The fruit ripens in the month of June- July. Fruits are usually slight bitter and acidic in taste. The apricot has been used in folk medicine as a remedy for various diseases Gilani *et al*. (2001) [1]. Bark is used as an astringent to soothe irritated skin. Apricot oil is used in cosmetics to protect the skin from UV radiation and as a pharmaceutical agent (laxative and expectorant). Apricots are delicious when eaten fresh or can be used - in desserts, poached, stewed or pureed in jams, chutneys, pickles, salads etc. Strained baby foods from pulp of apricot are nutritious and a good source of calcium, phosphorus and iron. The oil of seed is edible and oil cake can be used as organic manure. It is also reported to be use in asthma, constipation and cough Ghasemhezhad *et al*. (2010) [2]. By keeping in view the significance of this fruit, attempts have been made to utilize the fruit into the preparation of RTS beverage in different combinations with cultivated apricot.

Materials and Methods
The wild apricot fruit was procured from Kullu district whereas cultivated apricot was procured from local market (Palampur) Kangra district of Himachal Pradesh. The fruits were sorted, graded and washed under running tap water to remove adhering dirt etc. The wild apricot fruit was analyzed for their physico-chemical analysis. The specific parameters viz fruit colour, flesh colour and shape were assessed by visual appearance. Physical methods viz., length and breadth of the fruit were assessed by using vernier caliper. The weight of the fruit was assessed by electronic weighing balance. The TSS and pH content was measured by hand refractometer and pH meter, respectively. The moisture, protein, fat, ash and fibre and sugars were estimated by AOAC (1990) [3]. The carbohydrates were determined as NIN (1983) [4].

Total carbohydrates (%) = 100- (moisture %+ protein %+ fat % + fibre % + ash %)

The acidity, sugars and minerals were estimated by Ranganna (2007) [5]. The ascorbic acid, β-carotene, Vitamin A, anthocyannin and pectin were assessed by the method by Srivastava and Kumar [6]. The tannins, simple and total phenols were estimated by the method Mekker *et al*. (1993) [7]. The NDF, ADF and hemicellulose contents were estimated

by the method given by Van Soest and Wine (1967) [8]. The available/ digestible carbohydrates were determined by subtracting NDF from total carbohydrate. The unavailable/ indigestible carbohydrates were determined by subtracting available carbohydrate from total carbohydrate. The total energy was calculated by multiplying by the protein, fat and total carbohydrate by 4.0, 9.0 and 4.0, respectively and summing up the values. The available energy was calculated by multiplying by the per cent protein, fat and available carbohydrate by 4.0, 9.0 and 4.0, respectively and summing up the values. The values were reported as KCal /100g on dry matter basis.

Sample preparation and product formulation: The procured fruits (wild and cultivated apricots) were washed thoroughly under running tap water. The juice was obtained by hot pulping method and stones were separated manually. The boiled material was cooled to room temperature and ground into a domestic grinder to obtain homogeneous pulp. The pulp was sieved with the help of muslin cloth. 1.0 g sodium benzoate was added to 1 litre of pulp and stored in pre-sterilized glass bottles for preparation of functional beverages. The beverage and chutney were prepared as per the FPO specifications. The prepared beverages were heated to 85^0C, poured into sterilized 200ml bottles, sealed with crown cork and heat processed by dipping in boiling water for 20 minutes at 85^0C. Similarly chutney was also prepared and stored in air tight container. Both the products were assessed for their nutritional analysis as per the methods Ranganna (2007) [5]. The 9 point Hedonic scale was employed for the sensory evaluation of prepared products Larmond (1997) [9]. The prepared products were evaluated organoleptically for colour, taste, flavour, texture/consistency and overall acceptability to a panel of 10 judges by using 9 point Hedonic scale.

Result and Discussion

The specific parameters of wild apricot (Table I) fruit shows that the fruit and flesh colour was observed as yellowish orange and yellow with round shape. The fruit had fuzzy skin with slight bitter and acidic in taste. The flesh firmness was soft and pulpy. The mean values for length, breadth and weight were recorded as 1.48 (cm), 1.30 (cm) and 3.14 (g), respectively. The specific gravity of the fruit was 0.97 g/ml. The mean values for TSS (^{0}B), pH, acidity (%), total sugar, reducing sugar and non-reducing sugars were reported as 11.00, 3.62, 0.80, 7.57, 2.08 and 4.57 respectively. The data on proximate composition reveal that moisture, fat, fibre, ash, protein and total carbohydrate contents were reported as 84.28, 0.26, 0.96, 0.66, 1.49 and 12.39 per cent, respectively. The dietary fibre constituent's viz., NDF, ADF and hemi-cellulose contents were noted as 10.93, 6.93 and 4.00 per cent. The results of the present investigation are in agreement with Parmar and Kaushal (1982) [10]. The available, unavailable carbohydrate (%), total energy and available energy (Kcal) were reported as 2.30, 10.69, 61.18 and 17.45 respectively. The mean values of anti-nutrients viz., tannins, simple and total phenols were reported as 0.30, 14.94 and 15.24 per cent, respectively.

Table II shows functional constituents vitamin C, b- carotene, vitamin A and pectin contents as 18.13mg/100g, 2214.13 mg/100g, 3960.21 (I.A), 8.16 mg/100gm and 0.56 per cent, respectively. The data on mineral content shows that the fruit had highest content of potassium (182.67 mg/100g) while the mean values for calcium, phosphorous, magnesium and iron were 19.46, 93.18, 0.42 and 3.39 mg/100g, respectively.

Nutritional evaluation of prepared products

1. RTS Beverage

The data in Table III shows effect of blending and storage on nutritional parameters of wild apricot based RTS beverage blended with cultivated apricot pulp. The TSS of wild apricot based RTS beverage was significantly increased with the increased proportions of cultivated apricot. Irrespective of the blending, the mean value for fresh RTS beverage was 16.19^{o}B which remained almost constant during 3 month of storage and further increased to 16.35 and 16.43 for 6 and 9 months of storage interval. The increase in TSS might be due to hydrolysis of complex carbohydrates into sugars. Similar trend is reported in jamun based RTS beverage by Das (2009) [11]. The mean values for pH up to the blending proportion of (50:50) varied non-significantly and after that the values varied significantly. A decrease in pH content was observed in all the blends during storage interval of 9 months. A decrease in pH might be due to chemical reaction taking place during storage. Similar trend is reported in jack fruit and mango RTS beverage by Roy *et al*. (1997) and Krishnaveni *et al*. (2001) [12, 13]. The values for per cent acidity (as % Malic acid) increased with increased ration of cultivated pulp. The acidity content for all the blends decreased with the increase of storage period. The results with respect to effect of blending on ascorbic acid content reveal that as the blending of cultivated apricot pulp increases, the ascorbic acid content decreases significantly. With storage, the mean values decrease significantly. The decrease in ascorbic acid content during storage may be due to oxidation of ascorbic acid to dehydro-ascorbic acid, as the ascorbic acid is highly sensitive to presence of oxygen in its environment. The results of the present findings are in conformity with those of reported by Das (2009) and Krishnaveni *et al* (2001) [11, 13]. Data on effect of blending and storage on sugar content shows that per cent reducing sugars varied non-significantly when wild apricot based RTS beverage was compared with 75:25 proportions of wild apricot: cultivated apricot based RTS beverage. Irrespective of blending proportions, the sugar content decreased with the increase of storage period. The total sugar content shows that the mean values varied non-significantly between 100:00 and 75:25 proportions of wild apricot: cultivated apricot based RTS beverage. A decreased in total sugar content was observed in jamun based RTS beverage Kannan and Thirumanan (2004) [14]. The non-reducing sugar content decreased with the increase blending proportion of cultivated apricot pulp. However, storage had non-significant effect and values varied significantly when compared with fresh. The decrease in non-reducing sugars might be due to the hydrolysis of non-reducing sugars to reducing sugar during storage. Similar observations were recorded for nectarine based RTS beverage during 6 months of storage interval by Shivani (2011) [15].

2. Chutney

Data in Table IV shows mean TSS of wild apricot based chutney was 68.32°B which remained almost constant up to the blending level of 75:25. A significant increase in TSS was noted when control/pure wild apricot chutney was compared with the blending proportions of 50:50, 25:75 and 100:00. Irrespective of blending proportion, storage had significant effect on TSS content. The mean TSS content varied from 68.13 to 68.86°B. Similar trend is observed in kachnar-mango and aloe-papaya blended chutney by Awasthi (2007) and Mishra (2008) [16, 17]. The data on pH content reveal that as the blending of cultivated apricot pulp increases, the pH content varied non-significantly. The pH value for fresh wild apricot chutney was recorded as 3.19. The mean values for all the blends varied from 3.19 to 3.18. The mean value for storage at fresh and 3 month was observed as 3.18 which increased to 3.20 and 3.22 during 6 and 9 months of storage. Similar observations were recorded by Nigam (2002) [18]. The data on per cent acidity (as malic acid) shows that as the concentration of apricot pulp increases, the values for acidity increases. The mean values for per cent acidity varied significantly. The mean values for fresh and 3 month had non-significant effect when compared with each other. The results of present investigation are in agreement with those of reported by Lal *et al*. (1989) and Sharma (2011) [19, 20]. A critical look on data reveal that blending of cultivated apricot pulp in different proportions had significant effect on ascorbic acid content. The ascorbic acid content in all the blends decreased with the increase of storage period. Results are in aggrement with the findings of (Nigam (2002 and Mishra (2008) [18, 17]. The reason for loss of ascorbic acid during storage is attributable to its slow oxidation due to the presence of some dissolved oxygen and its interaction with other organic constituents of chutney formulations which oxidizes it to dehydro-ascorbic acid. Data on regarding reducing sugars reveals that as the proportion of cultivated apricot pulp increase, the per cent reducing sugars increase significantly. Irrespective of blending proportions, storage produced significant effect on reducing sugar content. The mean value for reducing sugar ranged from 36.47 to 39.36 per cent with the enhancement of storage interval. The mean value for total sugars in wild apricot based chutney was 53.28 per cent which varied non-significantly up to level of 75:25. However, storage had significant effect on total sugar content. Maillard reaction and other chemical reaction of sugar with acids during the storage might be the reason for decrease in total sugar content. The results are in agreement with those of reported by Nigam (2002) [18]. The data on non-reducing sugar content exhibit that as the concentration of cultivated apricot pulp increases, the per cent non reducing sugar varied from 17.07 to 19.53 per cent. However, storage had significant effect on non-reducing sugar content. The decrease in non-reducing sugar may be due to higher rate of conversion of non-reducing sugar to the reducing sugar.

Organoleptic evaluation of prepared products

1. RTS beverage

Table V shows colour scores of pure/wild/control apricot based RTS beverage was recorded as 8.00 which remained constant with the addition of 25 parts of cultivated apricot pulp but thereafter, the scores increased to 8.20 after addition of 50 and 100 parts of cultivated apricot pulp. The increase in colour scores in 00:100 may be attributed to the bright colour of cultivated apricot pulp. In respect of storage interval, the mean colour score for all the treatments/ blends was 8.00 which slightly decreased to 8.10 for 3 and 6 months and gradually decreased to 7.64 after 9 month of storage. The reason for decrease in colour score with the increase in storage interval may be attributed to the effect of storage on the colour pigment. Similar findings have been reported by Kumari (2007) [21]. The taste and flavor scores for RTS beverage were higher in RTS prepared from pure cultivated apricot pulp (8.30) followed by RTS prepared by using 75, 50 and 25 parts of cultivated apricot pulp with recorded scores as 8.10, 7.70 and 7.40. However, during storage the taste scores decreased. On a whole, the scores of flavour increases with the addition of cultivated apricot pulp. The reason for decrease in flavour scores for wild apricot based RTS beverage may be due to bitter taste of pulp. The consistency of RTS beverage prepared by using pure/100 parts of wild apricot pulp was scored as (8.62). With storage, the mean scores for consistency decreased with the increase in storage period. In terms of overall acceptability, the RTS beverage prepared from pure cultivated apricot pulp was rated best (8.30). Hence, the overall acceptability of the RTS beverage increased, as the ratio of cultivated apricot pulp increases. The findings of the present investigation are in agreement with the findings of Shivami (2011) [15] who observed a decrease in overall acceptability of nectarine RTS with the increase of storage interval up to 6 months.

2. Chutney

The mean colour scores for all the blends of chutney varied non-significantly (Table VI). The scores were almost similar for pure wild apricot and cultivated apricot based chutney (7.50 and 7.55). With storage, the mean colour scores for fresh and 3 month (7.58 and 7.50) had non-significant effect on colour and thereafter, the colour scores decreased significantly to 7.46 and 7.40 after 6 and 9 month. The decrease in colour may be due to effect of storage on colour pigments. The taste scores reveal that incorporation of 25 per cent apricot pulp in chutney resulted in non-significant difference whereas; the scores increased with the addition of 50, 75 and 100 per cent of cultivated apricot pulp. Irrespective of all the blends, the storage had non-significant effect on taste up to 3 month of storage. The taste scores decreased from 7.52 to 7.34, 7.14 and further to 6.60 for a storage period of 3, 6 and 9 months. The scores with respect to flavour showed that blending up to the level of 75:25 proportions of wild apricot: cultivated apricot chutney had non-significant effect on flavour. The maximum scores were observed for control cultivated apricot pulp based chutney. The scores varied significantly when chutney was blended with 50, 75 and 100 per cent pulp of cultivated apricot pulp. However, the mean flavour score all the blends decreased with the increase of storage interval. Similar observations were recorded by Kaur (2005) [22].

The mean scores for consistency and overall acceptability varied non-significantly up to the blending proportion of 75:25. The scores for consistency for all the blends for freshly prepared chutneys were almost similar. The scores regarding

overall acceptability determine that the chutney prepared from pure cultivated apricot pulp had maximum scores (7.88). The overall acceptability scores reveal that blending of cultivated apricot pulp increases the overall acceptability of the product. A decrease in overall acceptability of pure wild apricot based chutney is due to bitter taste of pulp and blending of cultivated apricot pulp dominate its bitter taste and resulted in good quality product in terms of taste. However, as the storage intervals increases, the scores decreases with corresponding scores as 7.74, 7.58, 7.47 and 7.17 for fresh 3, 6 and 9 month of storage interval.

Table 1: Specific parameters of wild apricot

Parameters	Observations/ Mean values
Specific parameters	
Fruit colour	Yellowish orange
Flesh colour	Yellow
Shape	Round
Appearance	Fuzzy skin
Taste	Slightly bitter and acidic
Flesh firmness	Soft and pulpy
Physical parameters	
Length (cm)	1.48
Breadth (cm)	1.30
Weight (g)	3.41
Specific gravity (g/ml)	0.97
Nutritional parameters	
TSS (^{0} B)	11.00
Ph	3.62
Acidity (% Citric acid)	0.80
Reducing sugars (%)	2.08
Total sugars (%)	7.56
Non- reducing sugars (%)	5.10
Proximate composition	
Moisture (%)	84.28
Fat (%)	0.26
Fibre (%)	0.96
Ash (%)	0.66
Protein (%)	1.45
Total carbohydrates (%)	12.39
Other parameters	
NDF (%)	10.93
ADF (%)	6.93
Hemicellulose (%)	4.00
Available Carbohydrates (%)	2.30
Unavailable Carbohydrates (%)	10.69
Total Energy (Kcal/100g)	61.18
Available Energy (Kcal/100g)	17.45
Anti- nutritional Parameters	
Tannins (%)	0.30
Simple Phenols (%)	14.94
Total Phenols (%)	15.24

Table 2: Functional constituents

Functional constituents	
Vitamin C (mg/100g)	18.13
B- Carotene (mg/100g)	2214.13
Vitamin A (I.U)	3960.21
Pectin (%)	0.44
Minerals	
Calcium (mg/100g)	19.66
Phosphorous (mg/100g)	24.33
Iron (mg/100g)	2.53
Potassium (mg/100g)	92.33

Table 3: Effect of blending and storage on nutritional parameters of wild apricot based RTS beverage

Parameters	Blends WA: CA	Storage (months)				
		Fresh	3	6	9	Mean
TSS (^{0}B)	100:00	16.00	16.00	16.06	16.13	16.05
	75:25	16.00	16.00	16.16	16.33	16.13
	50:50	16.10	16.17	16.30	16.50	16.26
	25:75	16.30	16.27	16.50	16.60	16.42
	00:100	16.50	16.47	16.70	16.57	16.57
	Mean	16.19	16.18	16.35	16.43	
pH	100:00	3.92	3.86	3.82	3.75	3.84
	75:25	3.91	3.90	3.86	3.72	3.85
	50:50	3.91	3.83	3.84	3.74	3.83
	25:75	3.86	3.81	3.76	3.71	3.78
	00:100	3.85	3.78	3.73	3.68	3.76
	Mean	3.89	3.83	3.80	3.72	
Acidity (% Malic acid)	100:00	0.48	0.53	0.62	0.68	0.57
	75:25	0.50	0.57	0.69	0.71	0.62
	50:50	0.56	0.69	0.74	0.83	0.71
	25:75	0.60	0.69	0.77	0.87	0.73
	00:100	0.64	0.70	0.79	0.86	0.75
	Mean	0.56	0.64	0.72	0.73	
Ascorbic acid (mg/100g)	100:00	1.71	1.62	1.47	1.36	1.54
	75:25	1.58	1.49	1.30	1.22	1.39
	50:50	1.35	1.16	1.12	0.92	1.14
	25:75	1.21	1.11	0.91	0.87	1.03
	00:100	1.07	1.01	0.97	0.79	0.96
	Mean	1.38	1.28	1.15	1.03	
Reducing sugars (%)	100:00	4.56	4.67	4.87	5.07	4.79
	75:25	4.67	4.73	4.93	5.13	4.86
	50:50	4.73	4.87	5.08	5.51	5.05
	25:75	4.80	5.12	5.21	5.51	5.16
	00:100	5.21	5.27	5.35	5.76	5.39
	Mean	4.79	4.93	5.09	5.39	
Total sugars (%)	100:00	12.95	12.11	11.03	10.14	11.56
	75:25	13.41	12.96	11.42	10.39	12.04
	50:50	14.00	13.41	12.58	11.42	12.85
	25:75	14.45	13.97	13.41	12.96	13.69
	00:100	15.03	14.45	14.00	13.41	14.22
	Mean	13.96	13.38	12.49	11.67	
Non-reducing sugars (%)	100:00	7.96	7.06	5.85	4.81	6.42
	75:25	8.34	7.80	6.16	5.35	6.91
	50:50	8.79	8.44	7.07	5.84	7.53
	25:75	9.16	8.43	7.79	7.07	8.12
	00:100	9.33	8.72	8.21	7.25	8.38
	Mean	8.72	8.08	7.01	6.06	

CD (P≤0.05)	TSS	pH	Acidity	Ascorbic acid	Reducing	Total sugars	Non-Reducing sugars
Between Blends (A)	0.10	0.01	0.10	0.07	0.81	0.11	0.78
Between Storage (B)	0.09	0.01	0.09	0.06	0.72	0.10	0.70
Between Blends x Storage (AXB)	0.22	0.02	0.21	0.15	1.62	0.22	1.57

Table 4: Effect of blending and storage on nutritional parameters of wild apricot based chutney

Parameters	Blends WA: CA	Storage (months)				
		Fresh	3	6	9	Mean
TSS (0B)	100:00	68.07	68.07	68.43	68.73	68.32
	75:25	68.03	68.03	68.40	68.76	68.31
	50:50	68.13	68.21	68.53	68.73	68.40
	25:75	68.13	68.43	68.63	68.86	68.52
	00:100	68.30	68.56	68.86	69.23	68.74
	Mean	68.13	67.62	68.57	68.86	
pH	100:00	3.19	3.20	3.17	3.22	3.19
	75:25	3.20	3.21	3.22	3.24	3.22
	50:50	3.19	3.19	3.20	3.23	3.20
	25:75	3.18	3.17	3.20	3.21	3.19
	00:100	3.16	3.16	3.22	3.21	3.18
	Mean	3.18	3.18	3.20	3.22	
Acidity (% Malic acid)	100:00	1.63	1.59	1.55	1.51	1.57
	75:25	1.69	1.65	1.61	1.57	1.63
	50:50	1.85	1.71	1.63	1.62	1.70
	25:75	1.78	1.74	1.68	1.62	1.71
	00:100	1.82	1.78	1.75	1.70	1.76
	Mean	1.75	1.69	1.64	1.60	
Ascorbic acid (mg/100g)	100:00	1.71	1.62	1.47	1.36	1.54
	75:25	1.58	1.49	1.30	1.22	1.39
	50:50	1.35	1.16	1.12	0.92	1.14
	25:75	1.21	1.11	0.91	0.87	1.08
	00:100	1.07	1.01	0.97	0.79	0.96
	Mean	1.38	1.28	1.15	1.03	
Reducing sugars (%)	100:00	34.41	35.05	36.05	37.49	35.75
	75:25	35.37	35.73	36.40	37.89	36.35
	50:50	36.40	36.05	37.53	38.26	37.06
	25:75	37.49	38.26	39.90	41.20	39.21
	00:100	38.66	39.46	41.20	41.95	40.32
	Mean	36.47	36.91	38.22	39.36	
Total sugars (%)	100:00	55.98	53.57	52.88	50.69	53.28
	75:25	57.70	55.98	53.58	51.39	51.39
	50:50	58.62	56.05	55.31	52.83	52.83
	25:75	60.51	58.61	55.97	53.59	53.59
	00:100	63.59	61.47	60.50	58.61	58.61
	Mean	59.28	57.14	55.65	53.42	
Non- reducing sugars (%)	100:00	20.49	17.60	15.99	14.19	17.07
	75:25	21.20	19.23	16.31	12.15	17.22
	50:50	21.08	19.00	16.92	12.08	17.27
	25:75	21.86	19.31	15.60	11.74	17.13
	00:100	23.67	20.92	18.34	15.19	19.53
	Mean	21.66	19.21	16.63	13.07	

CD (P≤0.05)	TSS	pH	Acidity	Ascorbic acid	Reducing sugars	Total sugars	Non-Reducing sugars
Between Blends (A)	0.10	0.03	0.04	0.07	0.60	1.51	1.43
Between Storage (B)	0.09	0.02	0.03	0.06	0.54	1.38	1.28
Between Blends x Storage (AXB)	0.22	0.06	0.08	0.15	1.20	3.03	2.86

Table 5: Effect of blending and storage on organoleptic scores (9 point Hedonic Scale) of wild apricot based RTS beverage

Parameters	Blends WA: CA	Storage (months)				
		Fresh	3	6	9	Mean
Colour	100:00	8.00	8.00	8.00	7.60	7.90
	75:25	8.00	7.90	8.00	7.60	7.87
	50:50	8.20	8.10	8.10	7.70	8.02
	25:75	8.10	8.00	8.00	7.60	7.92
	00:100	8.20	8.10	8.10	7.70	8.02
	Mean	8.10	8.00	8.00	7.64	
Taste	100:00	6.80	6.70	6.30	6.10	6.47
	75:25	7.40	7.20	6.70	6.10	6.85
	50:50	7.70	7.40	7.00	6.70	7.20
	25:75	8.10	7.80	7.40	7.10	7.60
	00:100	8.30	8.00	7.80	7.30	7.85
	Mean	7.60	7.42	7.04	6.66	
Flavour	100:00	6.70	6.50	6.30	6.20	6.42
	75:25	6.80	6.60	6.40	6.20	6.50
	50:50	7.20	7.00	6.70	6.20	6.78
	25:75	7.50	7.30	7.00	6.80	7.15
	00:100	8.10	7.70	7.30	7.00	7.52
	Mean	7.26	7.02	6.74	6.48	
Consistency	100:00	8.70	8.70	8.60	8.50	8.62
	75:25	8.50	8.50	8.50	8.30	8.45
	50:50	8.60	8.60	8.40	8.30	8.47
	25:75	8.70	8.60	8.40	8.20	8.47
	00:100	8.60	8.50	8.30	8.20	8.40
	Mean	8.62	8.58	8.44	8.30	
Overall Acceptability	100:00	7.55	7.47	7.30	7.10	7.36
	75:25	7.67	7.55	7.40	7.05	7.42
	50:50	7.92	7.77	7.55	7.22	7.62
	25:75	8.10	7.92	7.70	7.42	7.79
	00:100	8.30	8.02	7.87	7.55	7.95
	Mean	7.91	7.76	7.56	7.27	

CD (P≤0.05)	Colour	Taste	Flavour	Consistency	Overall Acceptability
Between Blends (A)	0.38	0.38	0.43	0.26	0.19
Between Storage (B)	0.34	0.34	0.38	0.24	0.17
Between Blends x Storage (AXB)	0.75	0.76	0.85	0.53	0.38

Table 6: Effect of blending and storage on organoleptic scores (9 point Hedonic Scale) of wild apricot based chutney

Parameters	Blends WA: CA	Storage (months)				
		Fresh	3	6	9	Mean
Colour	100:00	7.50	7.50	7.50	7.50	7.50
	75:25	7.50	7.50	7.50	7.40	7.47
	50:50	7.60	7.50	7.40	7.40	7.47
	25:75	7.60	7.40	7.40	7.30	7.42
	00:100	7.70	7.60	7.50	7.40	7.55
	Mean	7.58	7.50	7.46	7.40	
Taste	100:00	6.50	6.40	6.20	5.70	6.20
	75:25	6.90	6.70	6.40	6.10	6.52
	50:50	7.70	7.50	7.40	6.70	7.32
	25:75	8.00	8.00	7.70	7.10	7.70
	00:100	8.50	8.10	8.00	7.40	8.00
	Mean	7.52	7.34	7.14	6.60	
Flavour	100:00	6.80	6.60	6.40	6.10	6.47
	75:25	7.10	6.90	6.90	6.30	6.80
	50:50	7.40	6.90	7.00	6.50	6.95
	25:75	8.10	7.60	7.40	6.80	7.47
	00:100	8.10	7.90	7.70	7.10	7.70
	Mean	7.50	7.18	7.08	6.56	
Consistency	100:00	8.40	8.30	8.30	8.20	8.30
	75:25	8.30	8.30	8.30	8.20	8.27

	50:50	8.40	8.40	8.20	8.10	8.27
	25:75	8.30	8.30	8.00	8.00	8.15
	00:100	8.40	8.30	8.30	8.10	8.27
	Mean	8.36	8.32	8.22	8.12	
Overall Acceptability	100:00	7.30	7.20	7.10	6.87	7.12
	75:25	7.45	7.35	7.27	7.00	7.23
	50:50	7.77	7.57	7.50	7.17	7.51
	25:75	8.00	7.82	7.62	7.30	7.69
	00:100	8.17	7.97	7.87	7.50	7.88
	Mean	7.74	7.58	7.47	7.17	

CD (P≤0.05)	Colour	Taste	Flavour	Consistency	Overall Acceptability
Between Blends (A)	0.38	0.39	0.41	0.33	0.20
Between Storage (B)	0.35	0.35	0.37	0.29	0.19
Between Blends x Storage (AXB)	0.78	0.79	0.83	0.65	0.43

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