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Effect of fortification with sweet potato and soya slurry on nutritional properties of blended papaya and guava fruit leather

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Abstract

Blended fruit leather is well recognised for their nutritive value and flavour content. Their composition adds nutrients, minerals and dietary fibre to the diet, while providing a substantial energy. This product has a stable shelf life due to its low moisture content and high portion of carbohydrates. When properly dried and packed, fruit leather has a shelf-life of up to six months without any refrigeration and when preservative is added, they can keep up to one year. The sample was formulated at different proportions and analyzed for nutritional composition. Ten different treatments with variation in addition of ingredients are conducted for experiment. Out of 10, best 3 treatments T₇ [PP (60%) + GP (20%) + SS (10%) + SP (10%)], T₈ [PP (70%) + GP (10%) + SS (10%) + SP (10%)] and T₉ [PP (80%) + SS (10%) + SP (10%)] along with control T₁₀ [PP (50%) + GP (50%)] are selected for further nutritional analysis by sensory evaluation. Nutritional composition indicated that the fresh blended papaya and guava fruit leather fortified with sweet potato and soya slurry contained minimum moisture of 9.66%, maximum protein of 5.36%, fat 2.50%, ash 7.06%, crude fibre 0.94%, carbohydrate content (82.82%), calorific value 343.82 Kcal/100g and mineral content viz., calcium (19.65 mg/100g), magnesium (21.70 mg/100g), iron (0.33 mg/100mg) and zinc (0.06 mg/100g) were noticed in combination treatments as compared to control fruits.

Keywords: Effect of fortification, sweet potato, soya slurry, blended papaya

Introduction

Papaya (*Carica papaya* L.) belongs to the small family Caricaceae and originated from low lands of Eastern Central America from Mexico to Panama (Aruna *et al.*, 1998) [5]. Papaya is the fourth most important fruit in India which is cultivated in 0.12mha with production of 5.30MT and stands first in productivity of 42.3MT/ha (Anon, 2016) [1]. The leading papaya growing state in area is Gujarat, production in Andhra Pradesh and productivity in Tamil Nadu. Papaya is considered as “protective food” due to its nutritive and medicinal properties. Fruit contains a proteolytic enzyme, papain, which helps in digestion of protein rich foods. It contains high amount of vitamin A (2020IU/100g pulp) next to Mango. Papaya is also rich source of other vitamins like thiamine, riboflavin, nicotinic acid and ascorbic acid (Jain *et al.*, 2011) [11].

Guava (*Psidium guajava* L.) is a member of Myrtaceae family and originated in Central America and Southern parts of Mexico (Somogyi *et al.*, 1996) [26]. It is also called “super fruit” due to its composition, it is an excellent source of vitamin C (100-260mg/100g pulp) and pectin (0.5-1.8%) (Verma and Shrivastava, 1965) [27] and 83 per cent of moisture but has low energy (66 Cal/100g pulp) and protein content 1% (Bose *et al.*, 1999). Fruit is rich in minerals like phosphorous (23-37mg/100g pulp), calcium (14-30mg/100g pulp), iron (0.6-1.4mg/100g pulp) as well as vitamins like niacin, pantothenic acid, riboflavin, thiamine and vitamin A (Bose *et al.*, 1999) [7]. Guava seeds are rich in omega 3 and omega 6 polyunsaturated fatty acid and dietary fibre.

Sweet potato is among the world’s most important and under-exploited food crops. With more than 133 million metric tons in annual production, sweet potato currently ranks, fifth and most important food crop on a fresh-weight basis in developing countries after rice, wheat, maize and cassava. Despite the fact that sweet potato commonly categorized as a subsistence, “food security” or “famine relief” crop, its uses have diversified considerably in developing countries over the last four decades.

Sweet potato is cultivated throughout the tropics and warm temperate regions of the world for its starchy roots, which can provide nutrition, besides energy (Edmond and Ammerman, 1971^[10]; Watt and Merrill, 1963^[28]). Soybean (*Glycine max*) being nutritionally very important, is receiving priority in the production, as it is a cheap source of good quality protein (40-42 %) and fat (18-20%) (Chauhan *et al.*, 1993)^[9]. Soy foods are one of the fastest growing categories in the food industry even as dairy to meat alternatives. The soy foods command to be rated as the most common foods in the world as “Healthful Functional Food” in the 21st Century. So the protein rich edible products can be prepared by complementing with soybean. Complementation will definitely help in yielding nutritious products at low costs and can significantly contribute in nutritional improvement of our population (Luciula *et al.*, 2012)^[14].

When the production of fruit is excess and lack of methods for preservation of fruits during harvest or peak season leads to post harvest loss, to overcome this situation, converting fresh produce into valued product like fruit leather, which ensure the supply of products that include fruit pulp. Therefore, one of the best ways of utilizing and preserving fresh fruits is processing them into leather (Natalia *et al.*, 2011)^[17]. Fruit leather is a dried-fruit treat, chewy and flavorful. High in fibre and carbohydrates, fruit leather is naturally low in fat. When the water is removed from fruit during the drying process, the remaining sugars, acids, vitamins and minerals become concentrated in the remaining solid part of the fruit, making fruit leather a nutritious snack. This is made by pouring fruit pulp onto a flat surface for drying. After dried, fruit pulp is pulled from the surface and rolled. Drying of fruit leather is a process, which involves simultaneous heat and mass transfer. Various methods are used for drying but there is not much work reported on the drying of fruit purees, although some previous studies used different method for drying (Chan and Carelletto, 1998)^[8].

Materials and Methods

Raw Materials

Papaya fruits of fresh, firm, oblong shaped, red flesh with sweet flavour were selected for the study. Fully matured ripened papaya fruits were selected and guava fruits of mature, medium size, round, smooth skin with yellow colour, white pulp with few seeds and no blemishes were obtained from farmer field, Kaladagi, Bagalkot. Soyabean flour was procured from the local market, Bagalkot. Soya slurry was prepared by mixing soya flour to water (1:5) in a blender, followed by heating to boiling (5 min) and passing through a filter (Chauhan *et al.*, 1993)^[9]. Sweet potato flour was procured from the local market, Bagalkot. It was made into

paste by mixing sweet potato flour to water till it get paste form. The papaya fruits were washed in running tap water to remove the adhering dirt material. They were peeled to remove outer skin, cut into halves and seeds were removed. These halves were cut to small pieces and crushed in mixer for 3-4 min. to get homogenized pulp. The guava fruits were washed in clean tap water and were dipped in hot water for 5 min. at 90°C. The blanched fruits were kept in cool water for 2 min. and cut into pieces. By using mixer, guava pulp was blended and seeds were separated from pulp by using strainer.

Ingredients

Sugar, citric acid, skim milk powder, pectin and sodium benzoate were procured from local market and used as ingredients for preparation of blended papaya and guava leather.

Table 1: Optimization of papaya, guava, sweet potato flour and soya slurry blended fruit leather preparation.

Ingredients	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉	T ₁₀
Papaya pulp (g)	40	30	20	10	0	50	60	70	80	50
Guava pulp (g)	40	50	60	70	80	30	20	10	0	50
Sweet potato flour (g)	10	10	10	10	10	10	10	10	10	0
Defatted soy slurry (g)	10	10	10	10	10	10	10	10	10	0
Sugar (g)	30 ⁰ brix									
Citric acid (g)	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Skim milk powder (g)	6	6	6	6	6	6	6	6	6	6
Pectin (g)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Sodium benzoate (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Preparation of blended papaya and guava leather

Papaya guava fruit leather was prepared by following procedure mentioned in the flow chart with slight modification (Mhalaskar *et al.*, 2012)^[15]. Guava and papaya fruit leather was prepared by blending the guava and papaya pulp at different levels by keeping the other ingredients constant (citric acid, skimmed milk powder, sweet potato flour and defatted soya slurry (Table1). The mixture was heated by adding sugar with continuous stirring till it reached to 30⁰Brix. The boiled mass was slightly cooled and 0.1 per cent of sodium benzoate was added. The concentrated pulp mixture was spread on trays (smeared with ghee) up to 0.5 cm thickness and kept in a cabinet dryer for drying at 50°C for 12 hours. (Figure 1).

Packaging

Dried leather sheets of different treatments were cooled, cut into pieces and were packed individually in polyethylene or polypropylene covers, labelled with details of treatments and replications and stored at ambient temperature.

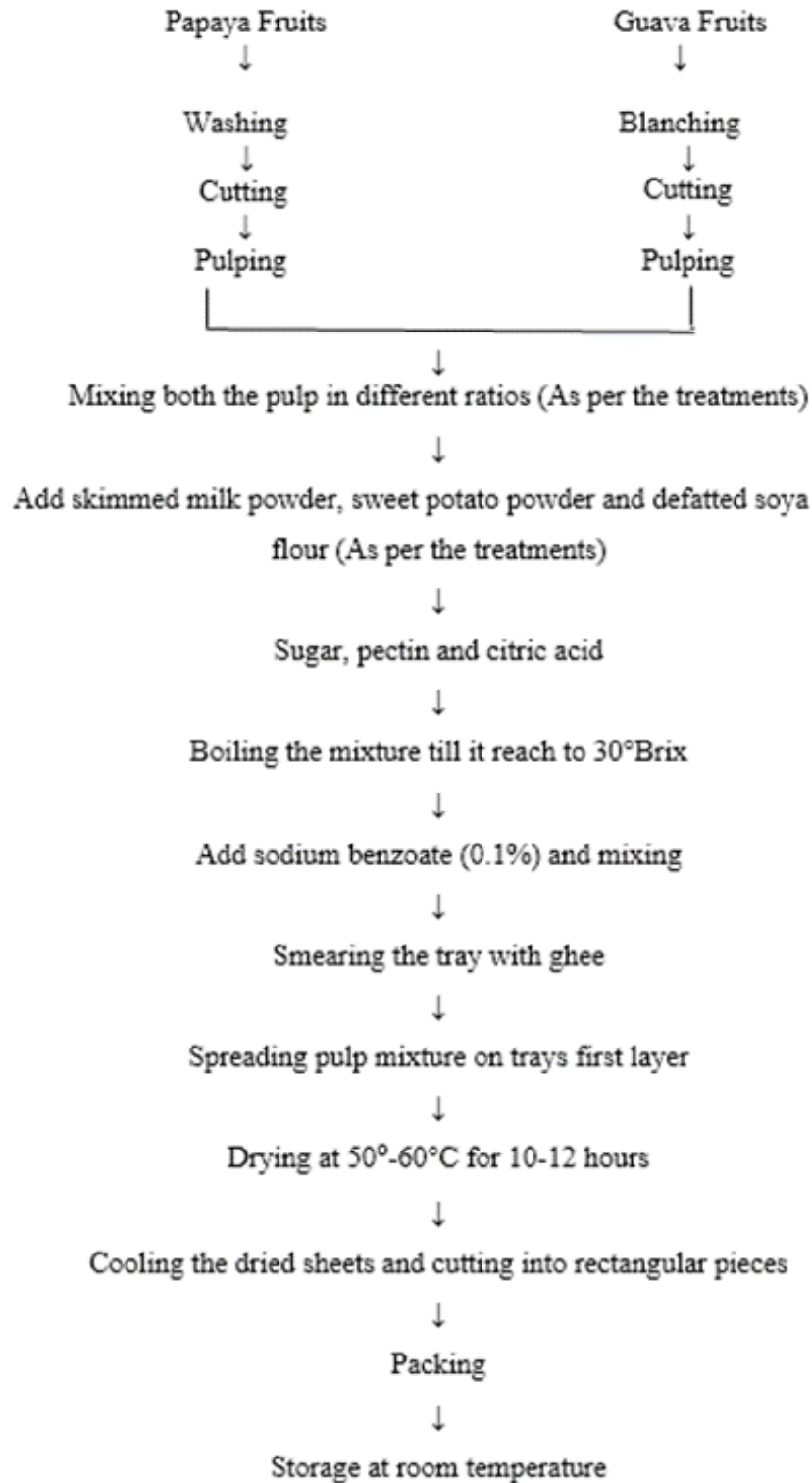


Fig 1: Flow chart for preparation of blended fruit leather

Nutritional Analysis

The blended fruit leather was analyzed for moisture, protein, fat, ash, crude fibre, carbohydrate, calorific value and mineral content *viz.*, calcium, magnesium, iron and zinc.

Moisture

Moisture content of fruit leather of different treatments was measured by slightly modifying the hot air oven method (Anon, 1994) [4]. Empty stainless steel moisture dishes with lids were first dried into a pre-heated oven ($100 \pm 1^\circ\text{C}$) for 1 h. The dishes and lids were then cooled for 30 min in a desiccator. Approximately 5 g nutri-enriched fruit leather was accurately weighed into the pre-weighed dishes and placed

into the oven with the lids placed under the respective dishes. These samples were dried at 105°C for 3 h and cooled in a desiccator for 30 min. The process of drying, cooling and weighing was repeated until constant weight obtained. Results were calculated in percentage using the following equation:

$$\text{Moisture content (\%)} = \frac{W_1 - W_2}{\text{Weight of the sample}} \times 100$$

Where:

W_1 = Weight of the moisture cup and sample before drying

W_2 = Weight of the moisture cup and sample after drying

Protein

Protein content in nutri – enriched fruit leather was estimated by using Lowry's method (Lowry, 1951) [13].

The fruit leather sample of two grams was taken and grinded in the pestle and mortar by adding 10 ml distilled water. This ground sample was transferred into 100 ml standard flask to make up the volume to 100 ml by adding distilled water. The sample solution (0.2 ml) was pipetted out into a test tube and make up to one ml with distilled water. To this test tube 5 ml of reagent (5ml of 2% sodium carbonate in 0.1N NaOH and 1ml of 0.5% copper sulphate in 1% potassium sodium tartarate) was added and mixed well, allowed to stand for 10 min. Then 0.5 ml of reagent (folin- ciocalteau reagent 1:1 dilution with 0.1N NaOH) was added and incubated at room temperature and placed in the dark for 30 min, the blue colour development was observed. The readings were recorded using a spectrophotometer at 660nm and expressed as percentage.

Fat (%)

Fat content was determined by using the Socs plus-SCS-6AS instruments described by Ojure and Quadri (2012) [19]. Initially weight of the beaker was taken (initial weight) and two grams of the nutri-enriched fruit leather were taken in thimbles and thimbles were placed in thimble holder and the thimble holder was kept in a beaker and to this 80 ml petroleum ether was added. The fat extraction process was carried out for 45 minutes by setting the temperature at 90°C. After 40 minutes, the beakers were kept in an oven at 100°C for 10-15 minutes to evaporate the petroleum ether. The beakers were then cooled in a desiccator and weighed again (final weight). The fat content was calculated using the following formula:

$$\text{Fat content (\%)} = \frac{\text{Final Weight (g)} - \text{Initial weight (g)}}{\text{Weight of the sample (g)}} \times 100$$

Crude Fibre (%)

Crude fibre estimation was done by using Fibra plus-FES-6 instrument. About 1g of the sample was weighed in the crucibles, fixed to the fibraplus instrument and then 100 ml of 1.25% H₂SO₄ was added to all the samples by closing the knobs. The temperature was set to 370°C and leave the sample for 40 minutes. After 40 minutes, the temperature was reduced to 200°C and open the knobs to remove all H₂SO₄ by suctioning and washed with distilled water and distilled water was removed by suctioning. The same procedure was repeated by adding 100 ml of 1.25% NaOH to all the samples. Then crucibles were taken and kept in an oven at 100°C for 3 hours and the crucibles were cooled in desiccator and weight was taken (W₁). After weighing, crucibles were kept in a muffle furnace at 500°C for 1 hour, allowed to cool and reweighed (W₂). Per cent of crude fibre in nutri-enriched fruit leather was calculated by using the following formula:

$$\text{Crude fibre (\%)} = \frac{W_1 \text{ (g)} - W_2 \text{ (g)}}{\text{Weight of the sample (g)}} \times 100$$

Where,

W₁ = Weight of crucibles after drying in an oven

W₂ = Weight of crucibles after ashing in muffle furnace

Ash (%)

Total ash content was determined by burning the nutri-enriched fruit leather in pre-weighed crucible in a muffle

furnace at 500°C for 6 hours (Rao and Bingren, 2009)^[24]. After burning the residue ash weight was recorded and ash content was calculated by using the formula.

$$\text{Total ash (\%)} = \frac{\text{Weight of the ash (g)}}{\text{Weight of the sample (g)}} \times 100$$

Carbohydrates (%)

Carbohydrate content was calculated by differential method (Anon, 1980) [3].

Carbohydrate (g/100 g) = 100 – [Protein (%) + Fat (%) + Ash (%) + fibre (%) + Moisture (%)].

Calorific value (K cal.)

Calorific value of fruit leather was calculated by differential method (Anon, 1980) [3].

Energy (K.cal) = [Protein (g) x 4 + Fat (g) x 9 + Carbohydrates (g) x 4]

Minerals (Ca, Mg, Fe and Zn)

Mineral estimation was done by using diacid mixture i.e, nitric acid and perchloric acid in the ratio by using wet digestion. Sample (0.5g) was taken into 100 ml conical flask than 5 ml of nitric acid was added and kept overnight. After pre digestion, it was heated at 180- 200°C temperature, cooled and 15 ml of di-acid mixture was added again and heated at 180-200°C on hot plate until the content was turned to brown colour. To this, 50 ml of water was added and filtered into 100 ml volumetric flask by using What's man No.1 filter paper. This filtrate was used for mineral estimation for iron and zinc by "Micro-Wave Plasma Atomic Emission Spectrometer" instrument. Calcium and magnesium was determined by titration method [22].

Statistical Analysis

The data on sensory evaluation, quality analysis and storage studies of nutri enriched fruit leather was carried out by using Completely Randomized Design (CRD) [20].

Results and Discussion

Moisture, protein, fat and ash content

Moisture content of papaya, guava, sweet potato flour and soya slurry blended nutri-enriched fruit leather are presented in Table 2. The data revealed significant difference among the treatments of nutri - enriched fruit leather. The minimum moisture content was reported in the treatment T₇ [PP (60%) + GP (20%) + SS (10%) + SP (10%): 9.66%] which was on par with T₈ (9.68%) and T₉ (9.92%). The maximum moisture content was reported in T₁₀ (Control: 10.91%). Variation in moisture content of fruit leathers in different treatments might be due to the influence of the type of ingredients. This may be due to presence of soya, sweet potato sugar and pectin which will make leather hard in all the treatments except control (T₁₀). The natural acidity and sugar content of fruit also influenced the moisture content of fruit leather. Naikare *et al.* (1998) [16] found that 16% moisture level in fruit leather had extended shelf life and retained sensory and physical quality up to six months. In the present study, the moisture level of the treatments was less and this may be due to addition of soya slurry and sweet potato flour.

Protein is one of the important nutrient which effects various human metabolic activity. Though fruits are not rich in protein attempts to increase it by concentration and fortification has been taken up. Data pertaining to protein

content of papaya, guava, sweet potato flour and soya slurry blended nutri -enriched fruit leather is furnished in the Table 2. Significantly higher protein content (5.36%) was found in the treatment T₇ and it was significantly different from all other treatments. The minimum protein content was recorded in the treatment T₁₀ (1.18%) and it differed statistically significant over all other treatments. The higher protein content in all treatments except control is obvious in the present study due to fortification of defatted soya slurry which is rich in protein content. Soybean is a cheap and excellent source of quality protein (40-42 %) and fat (18-20 %). Soybean contains less carbohydrate and more proteins and therefore it enriches the leather with protein. Another ingredient that is added to the leather was milk powder which also contributes the protein content. Parimita and Arora (2015) [20] found that the protein content of whey protein fortified bael fruit bar recorded significant difference between all the treatments. The significant differences in the protein of the mixed fruit leather was found and variation in the protein content could be attributed to different types of fruit used, probably due to the variable nitrogen containing compounds in the fruits as reported by Offia-Olua *et al.* (2015) [18]. Al-hooti *et al.* (1997) [1] noticed increase in protein and fat content in fortified date bars due to incorporation of skimmed milk powder.

Fat content of nutri -enriched fruit leather as influenced by different levels of treatments is presented in Table 2. The maximum fat content was observed in the treatment T₇ (2.50%). The minimum fat content was recorded in control *i.e.* T₁₀ (0.50%) and it differed statistically over all other treatments. This may be due to addition of soya slurry in all treatments which is rich in fat (18-20 %) was not added to control. Incorporation of skimmed milk powder also add fat content to the leather. Al -hooti *et al.* (1997) [1] noticed increase in fat content in fortified date bars due to incorporation of skimmed milk powder.

Ash content of papaya, guava, sweet potato flour and soya slurry blended nutri-enriched fruit leather is presented in Table 2. Data on ash content revealed that the maximum ash content of 7.06% was found in treatment T₇ [PP (60%) + GP (20%) + SS (10%) + SP (10%)]. The minimum ash content was recorded in treatment T₁₀ (4.12%). The higher ash content in all treatments was found to be relatively more except control. This may be due to addition of ingredients like soya, sweet potato and milk powder to treatments T₇, T₈ and T₉ recorded maximum ash content than control (50% papaya and 50% guava pulp). Soya contains higher mineral content and may add mineral matter to the leather. Defatted soy flour contains about 7.2% ash on dry basis (Chauhan *et al.* 1993) [9]. Legumes have been reported to be good sources of ash (Pyke, 1981) [23]. Shaheen *et al.* (2013) [25] reported that maximum ash (3.93 %) content was showed in fruit bars containing defatted soya flour.

Crude fiber, carbohydrates and calorific value

Data pertaining to crude fiber content of papaya, guava, sweet potato flour and soya slurry blended nutri – enriched fruit leather is furnished in the Table 3. Significantly higher crude fiber content was showed in the treatment T₇ (0.94%). The treatment T₁₀ (0.46%) showed lowest crude fiber content. Higher crude fiber content in T₇ may be due to fortification of defatted soya slurry and along with 20 per cent guava fruit which is rich in fiber content. The combination of this

ingredient with other had made fruit leather rich in fiberr study was reported by Kulshrestha *et al.* (2012) [12] studied on optimization of ingredients level in low calorie-high protein papaya fruit bar using response surface methodology. It was found that defatted soy flour affected all the responses both at linear and quadratic level.

The data related to carbohydrate content of papaya, guava, sweet potato flour and soya slurry blended nutri - enriched fruit leather is furnished under Table 3. The carbohydrate content of leather revealed significant difference among the treatments. The minimum carbohydrate content was observed in the treatment T₇ (74.48%) followed by treatment T₈ (76.18 %) and the maximum carbohydrate content (82.83 %) was observed in the treatment T₁₀ [PP (50%) +GP (50%)]. All the treatments were significantly different among themselves. Treatments T₇, T₈ and T₉ were less in carbohydrate content. This may be due to incorporation of sweet potato and soya slurry in these treatments thereby increase in other nutrients *viz.*, protein, fat, ash and crude fibre leads to low carbohydrate value. Treatment T₁₀ (Control) contained high carbohydrate due to lack in other nutrients.

Data with respect to calorific value of nutri-enriched fruit leather is presented in the Table 3. The data revealed significant difference among the treatments. The higher calorific value was reported in the treatment T₈ (343.82 Kcal/100g) followed by T₉ (342.38 Kcal/100g). The lowest calorific value was reported in T₁₀ (340.54 Kcal/100g). High calorific value was noticed in T₈, T₉ and T₇, they contained the ingredients like sweet potato, soya slurry and skimmed milk powder, which are dense in nutrients like protein and fat adds calorific value to the leather. Significantly, low calorific value was found in control this may due to more per cent of carbohydrate and low in other nutrients like protein and fat.

Calcium, magnesium, iron and zinc content

Calcium content of nutri - enriched fruit leather is furnished under Table 4. The data showed significant difference among the treatments. The maximum calcium content (19.65mg/100g) was observed in treatment T₉ followed by treatment T₈ (19.50mg/100g). Minimum calcium content was recorded in T₁₀ (17.60mg/100g) and it was significantly different from all other treatments. The higher mineral content in leather may due the genetic characteristic of fruit [6]. In addition, incorporation of ingredients like soya slurry, sweet potato and milk powder added to leather showed maximum calcium content than control (50% papaya and 50% guava pulp). Soya contain higher mineral content (Ca, 240 mg/100 g; iron, 10.4 mg/100g) and it may add mineral to the leather.

The highest amount of magnesium (21.70 mg /100g), iron (0.33mg /100g) and zinc (0.06mg /100g) content was observed in the treatment T₈ (70% papaya pulp + 10%guava pulp + 10g soya slurry + 10g sweet potato) and minimum magnesium (17.50 mg /100g), iron (0.19mg /100g) and zinc (0.03mg /100g) content was observed in the treatment T₁₀(50% papaya pulp + 50% guava pulp). The higher mineral in leather may due the genetic characteristic of fruit [6] and also the ingredients like soya, sweet potato and milk powder added to leather makes it mineral dense [14] studied that in soybean based products, the iron levels ranged from 0.08 to 1.38 mg 100ml⁻¹ (average of 0.96 mg 100ml⁻¹ ± 0.29), and the zinc levels from 0.04 to 0.68 mg 100ml⁻¹ (average of 0.43 mg 100ml⁻¹ ± 0.12).

Table 2: Effect of blending ratio on moisture, protein, fat and ash content of blended fruit leather

Treatments		Moisture (%)	Protein (%)	Fat (%)	Ash (%)
T ₇	T ₇ : PP (60%) + GP (20%) + SS (10%) + SP (10%)	9.66	5.36	2.50	7.06
T ₈	T ₈ : PP (70%) + GP (10%) + SS (10%) + SP (10%)	9.68	4.96	2.14	6.20
T ₉	T ₉ : PP (80%) + SS (10%) + SP (10%)	9.92	4.14	1.94	6.09
T ₁₀	T ₁₀ : PP (50%) + GP (50%)	10.91	1.18	0.50	4.12
Mean		10.04	3.91	1.77	5.86
SEm ±		0.06	0.12	0.03	0.03
CD at 1%		0.28	0.48	0.07	0.13

SS: Soya slurry and SP: Sweet potato

The above treatments includes the following ingredients in common

GP: Guava pulp PP : Papaya pulp Pectin : 1.5g
 Sugar: 30⁰brix Milk powder :6 g Citric acid : 0.9g
 Sodium benzoate: 0.1%

Table 3: Effect of blending ratio on crude fiber, carbohydrates and calorific value of blended fruit leather

Treatments		Crude fiber (%)	Carbohydrates (%)	Calorific value (K cal / 100g)
T ₇	: PP(60%) + GP (20%) + SS (10%) + SP (10%)	0.94	74.48	341.86
T ₈	: PP (70%) + GP (10%) + SS (10%) + SP (10%)	0.84	76.18	343.82
T ₉	: PP (80%) + SS (10%) + SP (10%)	0.82	77.09	342.38
T ₁₀	: PP (50%) + GP (50%)	0.46	82.83	340.54
Mean		0.76	77.64	342.15
SEm ±		0.01	0.07	0.50
CD at 1% for fiber and carbohydrates CD at 5% for calorific value		0.04	0.67	1.74

SS: Soya slurry and SP: Sweet potato

The above treatments includes the following ingredients in common

GP : Guava pulp PP : Papaya pulp Pectin : 1.5g
 Sugar: 30⁰brix Milk powder :6 g Citric acid : 0.9g
 Sodium benzoate: 0.1%

Table 4: Effect of blending ratio on calcium, magnesium, iron and zinc content of nutri-enriched fruit

Treatments		Minerals (mg/100g)			
		Calcium	Magnesium	Iron	Zinc
T ₇	: PP(60%) + GP (20%) + SS (10%) + SP (10%)	18.65	19.70	0.24	0.05
T ₈	: PP (70%) + GP (10%) + SS (10%) + SP (10%)	19.50	20.75	0.29	0.05
T ₉	: PP (80%) + SS (10%) + SP (10%)	19.65	21.70	0.33	0.06
T ₁₀	: PP (50%) + GP (50%)	17.60	17.50	0.19	0.03
Mean		18.85	19.91	0.26	0.04
Sem±		0.18	0.14	0.01	0.02
CD@1%		0.74	0.60	0.02	0.07

Leather

SS: Soya slurry and SP: Sweet potato

The above treatments includes the following ingredients in common

GP : Guava pulp PP : Papaya pulp Pectin : 1.5g
 Sugar: 30⁰brix Milk powder :6 g Citric acid : 0.9g
 Sodium benzoate: 0.1%

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