DISCUSSION
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Yoghurt and related products continue to increase in popularity in many countries around the world. Consumers, especially children, demand novel yoghurt formulations more than traditional ones like plain yoghurt. Introduction of various fruit-flavoured yoghurts has significantly contributed to the consumption of yoghurt from all ages (Cinbas and Yazici, 2008). Fruits may be added to yoghurt formula as single or blends in the form of refrigerated, frozen and canned fruit juice or syrup. Most common fruits used in yoghurt formulae are peach, cherry, orange, lemons, purple plum, boysenberry, spiced apple, apricot, pineapple, strawberry, raspberry and blueberry (Chandan and Shahani, 1993). Incorporation of apple, papaya and mango fruit pulp at 0, 10, 20, 30, and 40 percent levels of fruits endorses the healthy image of yoghurts. In the present study, different concentration (0, 2.5, 5, 7.5 and 10 percent) of fruits such as papaya, mango, avacado and pine apple, and honey with three different sweeteners were enriched to yoghurt in order to increase the sensory properties, nutritional value and health benefits effect. Bardale et al., (1986) prepared a shrikhand-like product from skim milk known as chakka by fortifying it with apple, papaya and mango fruit pulp at 0, 10, 20, 30, and 40 percent levels.

The quality of yoghurt as affected by storage period was checked. Variations in acidity, pH and syneresis were determined. Syneresis is the oozing out of water on the surface of yoghurt. Syneresis is one of the quality parameters for yoghurt. Higher value of syneresis shows that yoghurt was of low quality. Syneresis value of control yoghurt was less than fruit and honey yoghurt. Fruit and honey enriched yoghurt shows the negligible amount of syneresis. Based on the present study, the syneresis are significantly increased by the addition of higher concentration of fruit and honey throughout the storage period. Flinger et al., (1998) also reports the absence of syneresis similar to
the findings of the present study. It may be assumed that sugar has the capacity to bind water leading to the absence of syneresis. Another reason might be the preparation of yoghurt under controlled condition.

The pH decreases and the acidity increases progressively during the storage period especially for the samples with different concentration of fruit and honey enriched yoghurt. This may be due to the excessive sugar fermentation and the presence of lactic acid producing organisms. Storage of all examined samples was accompanied with increased acidity and lower pH. The pH value of all fruits and honey enriched yoghurt was less than control yoghurt in all storage period. pH of yoghurt samples significantly (p<0.05) decreases with increased fruit and honey concentration. However, the pH of yoghurt is not significantly (p>0.05) affected by the different sweetener addition. Different storage period dramatically didn’t influence the pH change in the fruit and honey yoghurt. Canganella et.al., (1998) reports the pH of fruits added yoghurt decreased from 4.4 to 4.2 during 30 days of storage. In the present study, the pH of honey and avacado yoghurts are increased during storage period. However, the pH of Papaya, Mango and Pine apple was decreased slightly in storage period. This decreases might be attributed to the utilization of residual carbohydrates by the viable microorganisms and production of lactic acid, small amounts of CO$_2$ and formic acid from lactose. Vahedi et al. (2008) reported that the decrease in pH was due to the microorganism’s activity, where as Kailasapathy (2006) stated that post-acidification, during storage, was due to β-galactosidase which is still active at 0-5ºC. Some researchers suggest that the drop in pH during storage period is due to residual enzymes produced by starters during fermentation (Christopher et al., 2009). Acidity of fruit and honey enriched yoghurt samples were significantly (p<0.05) affected by the different concentration of fruits and honey, statistically no
significant (p>0.05) difference was observed, between the three sweetener added yoghurt. However, different storage period statistically did not influence the acidity level in the fruit and honey yoghurt. This could be attributed to the change of organic acid content in yoghurt during the fermentation and cold storage. **Tamime and Robinson (1985)** reported the reason for decreases in the pH as a function of acidity which increased due to the conversion of lactose into lactic acid during the storage period. The results obtained are concordant with the findings of **Wolfschoon (1983), and Masood (1997)** who reported a decrease in pH values of yoghurt during storage.

The two microorganisms *Streptococcus thermophilus* and *Lactobacillus delbrueckii* subsp. *bulgaricus* of the mixed yoghurt starter culture have “associate growth” in yoghurt (**Turner and Thomas, 1975**). Microbial growth continues during storage and the number of viable microorganisms is a critical factor in the final product in terms of acidification and also nutritional health benefits attributed to yoghurt starters as probiotics. It is generally recommended that yoghurt or fermented milk should contain at least $10^8$ CFU/serving (**EFSA, 2010**), which represents approximately one million viable cells per gram at the time of consumption. To maintain these numbers, it is important to follow viability during cold storage.

During storage the number of viable count decreased in all yoghurt samples except in FSBY (8 percent) the viable count increased from $1.8 \times 10^7$ to $7.28 \times 10^7$ cfu/ml. The fungi were not present in almost all samples 0 day of storage. *Lactobacillus* was identified in all yoghurt samples (**Mahmood et al., 2008**). In present study all storage period the TVC of all fruits and honey enriched yoghurt with sweeteners showed higher than control yoghurt (standard yoghurt). TVC of fruit and honey enriched yoghurt samples were significantly (p<0.05) increased by different concentration of fruit and honey with different sweeteners in all storage period. Among the storage
period maximum TVC was recorded in 0 day storage period followed by all storage period. 10 percent Avocado yoghurt with cane sugar recorded maximum TVC (10.7 x 10^6 cfu/g) followed by 10 percent Papaya yoghurt with aspartame (10.6 x 10^6 cfu/g), 10 percent Pine apple yoghurt with cane sugar (10.4 x 10^6 cfu/g), 10 percent, Honey yoghurt with aspartame (10.0 x 10^6 cfu/g) and 10 percent Mango yoghurt with aspartame (10 x 10^6 cfu/g) respectively. The result is in agreement with the following research, The cell numbers significantly decreased due to the over produced lactic acid and decreased pH during storage, On the other hand the present result was higher value than the total viable bacteria count per ml of curd (Dahi) prepared from goat milk was 5.859±0.05 (log value).

The coliform counts were <10 cfu/g for all the samples. Contamination with the coliform organism was a common problem in the industry and they are completely undesirable in any products. These organisms are killed during pasteurization and if they are present in the product they are the result of post pasteurization contamination (Kroger, 1975). The absence of coliform organisms indicates that proper care was taken during processing to avoid post processing contamination.

Yeast and mold count indicates contamination with these organisms particularly with fruit yoghurt yeast and mold problems are likely to arise (Kroger, 1975). Yeast and mold can also come from the environment where proper air control system was not in place. The result indicated that proper care was taken to avoid contamination throughout the process and there was no post processing contamination. Interestingly in this study, Yeast and mould, and coliform populations in yoghurts are not observed during storage over the time.

Sensory evaluation is an integral part of product development. As reported elsewhere,
preference for food items by consumers may depend on a successful combination of sensory properties such as taste, smell, texture and appearance (Salvador and Fiszman, 2004; Sowonola et al., 2005). Sensory evaluation results have shown that there was significant (P<0.05) variation in preferences of sensory attributes by the panelists. The statistical result indicates highly significant effect of treatments on sensory characteristics of different fruit and honey yoghurt. The addition of fruit and honey result in an increase in color and appearance, flavor, texture, taste and overall acceptability.

Color and appearance parameters are important for marketability of the products and consumer acceptance. Even though a functional food could provide several health benefits to consumer, without visual attraction to the consumers they cannot be marketable. Thus, the color of the supplemented products should ideally remain unchanged after production and during storage. The maximum hedonic score of Color and appearance are recorded in 7.5 percent fruit and honey enriched yoghurt. The mean score of color and appearance are low in higher and lower concentration of fruits and honey enriched yoghurt samples. Best flavor mean score was recorded in 10 percent Papaya yoghurt, and flavor score are gradually increased in high concentration of fruit and honey addition.

Texture was influenced by many factors including acidity and total solids. Hardi and Slacanac (2000) find that texture depends upon many factors including starter culture, milk composition, stabilizers, fruit solids and homogenization. Good textures are observed by panelists in yoghurt samples mixed with 10 percent fruit and honey with cane sugar. The minimum texture mean score of yoghurt samples are obtained in lower concentration of fruit and honey. Maximum texture score is recorded in 10 percent papaya and avacado yoghurt than others.
Taste has an important attributes for yoghurt acceptance by consumers (Barnes et al., 1991; Brennan et al., 2002). Panelists more like the taste of yoghurt with 10 percent mango and papaya followed by 10 percent avocado, pine apple and honey yoghurt. Taste of yoghurt samples was increased in higher concentration of fruit and honey. The maximum overall acceptability fruit and honey yoghurts are observed in 10 percent papaya yoghurt with cane sugar followed by 10 percent mango, avocado, pine apple and honey yoghurt with cane sugar. However, the differences of sugar concentration influence the overall rheological acceptability (Richter et al. 1979). Ming et al. (2000) also observed that quality parameters of the Yoghurt are influenced by combination of ingredients. On the basis of the findings, it can be concluded that addition of papaya fruit enhanced the quality of yoghurt and are selected for further studies.

**Probiotic yoghurt**

The health benefits of yoghurt are frequently cited very early, especially at the beginning of the last century. Nowadays, it is an important part of everyday diet for the maintenance and improvement of health status in the society. The health benefits of yoghurt are even more improved due to its ability to be a vehicle for probiotics and nutrient supplementation. Since yoghurt has also gained a very good acceptance in children and the elderly, it is now an important element of the health improvement strategies for these groups. The health promoting properties of probiotic bacteria in yoghurt include protection against gastrointestinal upsets, enhanced digestion of lactose by mal digesters, decreased risk of cancer, lower blood cholesterol and improved immune response and help the body assimilate protein, calcium and iron. ABT and ABY3 (CHR-HANSEN) commercially available probiotic bacteria are used for yoghurt preparation in this study. Syneresis and acidity of probiotic yoghurt are gradually increased simultaneously. pH was gradually
decreased in all storage period of probiotic yoghurt. During the storage period, significant differences are found between the control and probiotic yoghurt samples. An acidity value of the control and probiotic yoghurts tends to increase. *Lactobacillus delbrueckii* subsp. *bulgaricus* and *Streptococcus thermophilus* are responsible for the post acidification of yoghurt during cold storage (Donkor et al., 2006). Significant differences are found between the pH of the control and the probiotic yoghurts. Similar results are also reported by others (Canganella et al., 1998; Bakirci and Kavaz, 2008). These results may be due to acid production in the yoghurt during storage as a result of lactose fermentation (Rasic and Kurmann, 1978).

Total viable count of probiotic and control yoghurt are decreased in bacterial numbers during storage, can be due to the lower storage temperature and over acidification have been reported to limit the growth of *Lactobacillus delbureckii* spp. *blugaricus* (Kenifel et al. 1992). In addition yoghurt which was produced by starter culture has high numbers of yoghurt bacteria means that yoghurt produced by using starter culture has higher therapeutic and antimicrobial properties beside their organoleptic characteristics (Irkin and Eren, 2008). Several other factors have been claimed to affect the viability of probiotic bacteria in yoghurt including acidity, hydrogen peroxide, oxygen content, concentrations of lactic acids, and temperature of storage during manufacture and storage of yoghurt (Shah and Lankaputhra, 1995; Dave and Shah, 1997; Shah, 2000; Talwalkar et al., 2004). In the present study, Yeast and mould, and Coliform bacteria are not found in probiotic yoghurt samples. A similar result is reported by Birolo et al. (2000).

The sensory quality of control yoghurt was higher than that of the yoghurts with probiotic cultures. Yoghurt with ABY3 culture was preferred to probiotic yoghurt samples by the panelists. The highest sensory scores occur in ABY3 yoghurt than yoghurt produced by adding ABT. The
results suggest that the probiotic cultures tested in this study has the potential to contribute to flavored yoghurt production technology and product taste. Hence, ABY3 probiotic bacteria are considered for yoghurt production in further studies.

**Probiotic Papaya Yoghurt with stabilizer**

Papaya presents a valuable source of nutrients and is also low in calories. They are rich in dietary fiber, minerals as well as many bioactive compounds such as antioxidants e.g. carotenoids, ascorbic acid, tocopherols, phenolic substances. Papaya and stabilizers along with probiotic bacteria may also be added to alter or improve the characteristics of a yoghurt system. Gelatin, a protein-derived hydrocolloid, forms junction zones as amino acids in the gelatin structure change conformation upon heating and cooling (Imeson, 1997).

In the present study, the total solids, protein, solids not fat, and ash contents of papaya added yoghurt with gelatin are higher than in control yoghurt. The fat content of papaya added yoghurt decreases compared with control yoghurts. The maximum protein content was recorded in the yoghurt sample amended with papaya juice and gelatin. According to Galindo et al. (2009), papaya is rich in protein and these papaya fiber increases protein contents in yoghurt in high ratio. The ash content of the control yoghurt was lower than that of the papaya supplemented yoghurt. The ash content has the amount of non-combustible matter and total minerals present in a food (Johnson, 1974). Therefore, addition of the papaya juice to the milk has increased the ash content and thus the mineral content of the papaya yoghurt are more than in the control yoghurt.

The variation in the proximate composition of yoghurt samples was due to the compositional difference between papaya juice and the base milk used. Generally, the addition of papaya juice has a concentration effect on the composition of yoghurt due to higher total solid (TS)
content of papaya juice as compared to milk. According to the draft COMESA/ East African standard, yoghurt should have a minimum total solids not fat content of 8.2 percent (w/w). Codex stated yoghurt should have a minimum of 2.7 percent protein and a fat content of less than 15 percent. Accordingly, in this study, all yoghurt samples satisfy the above requirements.

The total carotenoids (TC), total phenolic (TP) and reducing power (RP) content was significantly (p<0.05) increased in the yoghurt samples with increased papaya juice addition. The minimum average TC (0.302±0.009 mg/100g), TP (3.57±0.03 mg GAE/100g) and RP (10.87±0.13 mg AAE/100g) was observed in control yoghurt sample while the maximum TC (1.22 mg/kg), TP (9.74 mg /100g) and RP (12.50 mg/100g) are observed in yoghurt with 20 percent papaya juice. Phenolics and carotenoids compounds from fruits and vegetables are potential antioxidants, which therefore can reduce the risk of some diseases such as cancer. Phenolic and carotenoid compounds are called high level antioxidants because of their ability to scavenge free radicals and active oxygen species such as singlet oxygen, superoxide free radicals and hydroxyl radicals (Kelebek et al., 2008).

Besides their antioxidant properties carotenoids are provitamin A especially Papaya (Pawpaw) fruits has a juicy taste rich in antioxidant like carotene, vitamin C, vitamin B, flavonoids, folate, panthotenic acids and minerals such as potassium and magnesium. The fruit was also a good source of fiber, all these are reported to promote the functions of cardiovascular system and provide protection against colon cancer (Franco et al., 1993; Fischer, 1998). All papaya fruit enriched yoghurt shows an increment in total carotenoid, phenolic content and reducing power than the plain yoghurt.
The TC, TP and RP content of the plain yoghurt samples observed in this study was almost little higher than the findings of Zainoldin and Baba (2010) who reports TP content of 2.025 mg GAE/100g in the plain yoghurt samples. This can probably be due to differences in phenol content of milk samples used in the experiments. The occurrence of TC, TP and consequently RP in milk and dairy products may be consequence of several factors e.g., the consumption of particular fodder crops by cattle, the catabolism of proteins by bacteria, contamination with sanitizing agents, process induced incorporation or their deliberate addition as specific flavoring or functional ingredients (O’connell and Fox, 2001).

The TC and TP content of papaya in the literature is quite variable, which can be due to differences in cultivar (Bari et al., 2006) pre- harvest management, post harvest handling method of analysis, processing method and storage (Rodriguez-Amaya et al., 2008). The total phenolic content of the papaya juice used in this research was higher than the value (28mg GAE/100g) reported by Lim et al., (2007) and lower than the result reported by Patthanakanoporn et al., (2008) which has (54mg GAE/100g) of juice. The content of carotene has the range from 8.66 mg/Kg to 78.07 mg /Kg reported by Puwastien et al., (2000); and Saxholt et al.,( 2008).

In general addition of papaya juice results in increased TC, TP, and RP of yoghurt and consequently the functional food property of yoghurt is improved due to increased carotenoids and phenolic contents which in turn can act as antioxidant and provitamin A.

Yoghurt firmness result of this study shows significant (P<0.05) difference in firmness values with increased concentration of papaya juice and gelatin. The papaya yoghurt was significantly more elastic than the control. The papaya juice has the most influence on the textural
quality of the yoghurt. This result can be due to the pectin component of the papaya juice, which tends to produce resistance to the structural deformation of the yoghurt. According to Dennapa et al. (2006), a combination of pectin and sugar in the presence of acid contribute to the gelling properties of milk and subsequently affects its texture.

The yoghurt firmness was gradually increased, as the papaya juice concentration in yoghurt samples increased this may be due to the higher crude protein and fiber content of yoghurt samples at higher papaya juice levels. Salvador and Fiszman, (2004) reports a higher protein content of yoghurt resulted in higher firmness values. The high firmness values can be due to the individual and combined effects of high solid content, the presence of sugar and gelatin. Fizman and Salvador (1999) compares milk gel systems with equal concentrations of gelatin and observes the forces are to be somewhat greater in the presence of solids. Moreover, the significant difference was observed in firmness values among yoghurt samples with different levels of gelatin addition can be ascribed to interaction of gelatin with the casein matrix of yoghurt to develop a stronger three dimensional network (Fiszman et al., 1999). The mean firmness of yoghurt samples at various gelatin and papaya juice levels range from 0.303±0.015 to 0.600±0.050 N and this was within the range reported by (Fiszman et al., 1999) which varies from 0.17 to 1.57 N.

For pH measurement all papaya fruit enriched yoghurt shows a lower reading compared to (control) yoghurt without papaya juice. pH of yoghurt samples significantly (p<0.05) decrease with increased papaya juice concentration. Nevertheless, pH of yoghurt is not significantly (p>0.05) affected by the amount of gelatin addition. The pH values observed in this study agree with the finding of Rasdhari et al., (2008) who reports pH values of yoghurt in the range of 4.39 to 4.59. The lower pH value observed in papaya supplemented yoghurt was due to higher activity of
yoghurt bacteria during the incubation period compared to the control that had lower total solids content. Similarly, Mahdian and Tehrani (2007) also reports that the activity of starter bacterial count enhanced when the total solids content of the milk was increased. All papaya juice enriched yoghurt shows a lower pH reading when compared to control yoghurt.

In terms of Titratable acidity (TA), it shows that all papaya juice enriched yoghurts have significantly (P<0.05) higher lactic acid percentage when compared to plain (control) yoghurt. It also suggests that increasing addition of papaya juice into yoghurt changed the lactic acid percentage in yoghurt and the percentage of lactic acid between 10 percent and 20 percent papaya enriched yoghurt was significantly different (P<0.05). Higher acidity was observed in yoghurt sample containing higher total solid concentrations.

Significant pH changes are observed during the storage period. The rich source of sugar provided by the fruit juice serves as a suitable substrate for the growth of microbes. Storage time and concentration of papaya juice has significantly (p< 0.05) affected the pH of yoghurt. Shaker et.al., (2000) and Nighswonger et.al., (1996) who reports that, increasing milk fat content increase the initial pH of the samples and the rate of decreasing the pH during storage of high fat samples was lower than others. However, the pH value of yoghurt samples with different combination of papaya juice levels are significantly (p<0.05) decreased as the storage time increases. The pH and titratable acidity measurements in the yoghurt samples are important because acidification is the key mechanism during yoghurt fermentation (Brabandere, et.al.,1999). The declining of pH during fermentation was due to the proto cooperative action of two strains of bacteria Streptococcus thermophilus and Lactobacilus bulgaricus (Brabandere, et.al., 1999). The presence of milk sugar (carbon source) and milk protein (nitrogen source) in the rich total solid
medium of milk encourages the bacterial strains to grow rapidly (Lourens, et.al., 2001). They transform lactose into lactic acid, acetaldehyde, diacetyl and formic acid. The accumulation of all these fermentation products corresponds to the increasing of acid production during fermentation. The liberation of lactic acids reflects the high metabolic activity of the lactic acid bacteria.

Moreover, the rate of TA in papaya juice supplemented yoghurt was higher compared with the control. The rapidly increase of acidity in yoghurt prepared with papaya juice was due to its lower buffering capacity and higher content of non protein nitrogen and vitamins which are needed for fast growing microorganisms (Salvador and Fiszman, 2004).

Generally the minimum acidity recommended for yoghurt has the pH 4.6 or lower. Whereas codex standard for yoghurt states yoghurt should have a minimum acidity of 0.6 percent. However, in the present study the acidity of all the yoghurt formulations was above the minimum recommended limit. In general, the pH values of all samples decreases while TA increases during the storage time and this was the results of lactic fermentation of yoghurt bacteria. The TA values are similar to the results obtained by O’Neil et.al., (1979) who observes an increase during storage.

Syneresis is defined as the separation of liquid from a yoghurt gel. This condition affects the texture and quality of the yoghurt throughout the storage period. By the addition of papaya juice and increases the gelatin level of yoghurt, the syneresis decreases significantly (p<0.05) as compared to the control. Mean values for the syneresis in the first day is in the range between 17.00±1.00 - 15.15±0.10 percent, the lowest syneresis was observed at the highest level of gelatin and papaya juice. Both papaya juice and gelatin addition significantly (p<0.05) affect the Syneresis of the yoghurt.
Syneresis significantly (P<0.05) decreases as the amount of gelatin level was increased from 0.5 percent to 0.6 percent, but the mean value between 0.6 percent and 0.7 percent gelatin levels was not significant (p>0.05). The syneresis of yoghurt at each papaya juice level decreases with increasing gelatin level and these differences are significant (P<0.05) at all levels. This can be related to the high soluble solid and fiber content of papaya juice which increases the solid content of yoghurt. Common reasons for the occurrence of whey separation on cultured products include low solids content (Lucey, 2002). Moreover, increased gelatin and papaya juice levels synergize in lowering syneresis of yoghurt samples and the lowest syneresis values are observed at 20 percent papaya juice and 0.7 percent gelatin level.

The syneresis of yoghurt samples was influenced by storage time. Moreover, the three way interaction effect of storage time, gelatin and papaya juice addition has significant (p<0.05) effect on syneresis of the yoghurt samples. Salvador and Fiszman, (2004) concluded that syneresis increases during storage time. Syneresis was observed to increase during storage of fruit flavored yoghurt (Tarakci et al., 2003). The mean value of syneresis obtained after 21 days of storage was significantly (p<0.05) higher than the syneresis of yoghurt after 0, 7 and 14 days of storage for all papaya juice and gelatin levels. The result was in agreement with the result of Ayar et al., (2006). Vahedi et al., (2008) observes a similar trend of change in syneresis of yoghurt during storage time in which syneresis decreases until 14th day of storage but it then increases until day 28 of storage time. Syneresis reduction can be related to absorption of unbound water by gelatin gel network and further reduction in syneresis until day 7 may be due to increased hydration of gelatin during the cold storage. However, increase syneresis was observed after day 7 over the rest of the storage time which can be associated to increase acidity of yoghurt samples due to acid
production by the starter culture. Tamime and Robinson, (1999) pointed out that the yoghurt syneresis was stimulated by increased acidity.

Syneresis increases in all of the samples during storages, which was significant after 14 day of storage. In this research the addition of gelatin and papaya juice greatly reduces the degree of syneresis until 7 days of storage times. In fact, syneresis increases markedly at lower pH, where the elastic deformation of the gel network occurs (Walstra et.al., 1999). The gel interaction network is weakened and eventually ruptured which reduces the water holding capacity of yoghurt structure. The yoghurt was kept at a cold temperature (4°C) to avoid the bond relaxation at high temperature which might accelerate the syneresis (Castillo et.al., 2005). The cooling would cause the protein casein to become more swollen. Moreover, moisture loss will occur at a low temperature and subsequently decrease the occurrence of syneresis. Moreover, addition of gelatin and papaya juice as stabilizer to prevent syneresis was cost effective method compared to other techniques (e.g.) milk solids fortification.

Panelists liking of yoghurt color, appearance, body and texture, flavor and over all acceptance was significantly influenced by the concentration of papaya in the yoghurt formulations. However, consumer panelists do not notice significant (p>0.05) difference among yoghurt samples for all attributes at all gelatin levels. Panelists note significantly (P<0.05) differences in flavor of yoghurt samples due to concentration of papaya used. However, panelists perception for appearance and overall acceptability score minimum at 20 percent papaya level. The papaya yoghurt and the control (without papaya) yoghurt gain similar acceptance by the panels although the control are less flavor, body and texture. The panels are not able to distinguish any differences in color and appearance, although the papaya juice was added to the yoghurt with the intention to provide more
appearance variations. The textures of all the yoghurt samples are soft and smooth. The same trend was seen in the results for overall acceptability with average hedonic scores of 6.2. Preference assessments are dependent on the psychological or functional components of pleasure of eating as complexity of neuron system determine the liking extent unconsciously (Berridge, 1996).

Panelists rating for appearance and color was similar for all yoghurt samples but yoghurt with 10 percent papaya juice was rated significantly (p<0.5) higher than the control yoghurt. Addition of up to 15 percent papaya juice received significantly higher mean scores for overall acceptability, which was in the range from 6.20 to 7.55 (i.e., in the range between like and like very much). However, addition of 20 percent papaya juice decreases the ratings to 4.45 - 5.30, which was dislike slightly and like slightly. For all sensory attributes, a yoghurt sample with 10 percent papaya juice has significantly higher mean hedonic scores than the control yoghurt. However, despite the unfamiliarity of the consumers to papaya supplemented yoghurt, participants find the sensory attributes of yoghurt supplemented with papaya juice to be very acceptable. This can be explained by the familiarity of consumers for the individual ingredients, i.e., papaya and milk (Huotilainen et al., 2006). In this study, yoghurt containing 10 percent papaya juice at all gelatin level has overall acceptability compared to all the other treatments.

Consumer panelists find significant difference in the body and texture, appearance, and flavor among yoghurt samples. However, panelists didn’t notice the difference in overall acceptability and taste among yoghurt samples. Panelists like equally yoghurt samples made using all gelatin levels for all sensory attributes except appearance in which case yoghurt with 0.7 percent gelatin and 10 percent papaya juice has significantly higher score. Panelists like most yoghurt samples with 10 percent papaya juice followed by yoghurt with 15 percent papaya juice. But there
is no significant difference in liking of yoghurt samples with 10 and 15 percent papaya juice. Yoghurt sample with 10 percent papaya juice receives significantly higher score for overall acceptability.

In this study, incorporation of fruits and honey to yoghurt formula was successfully achieved. There are differences in physicochemical and sensory characterization of fruit yoghurt when compared to control. Panel members preferred papaya added yoghurt while comparing to other fruit yoghurt. Papaya yoghurt with stabilizer has more nutritional and therapeutic value than the plain set yoghurt. Probiotic enriched papaya fruit based yoghurt, having essential vitamins and minerals. It was nutritionally beneficial for growing children, because of its good taste and flavor than the control yoghurt. Also yoghurt prepared with gelatin gives less syneresis and good firmness and consumer acceptability.