

Some properties of traditional Turkish dessert ‘*İncir Uyutması*’ produced by yoghurt culture

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The effect of yoghurt cultures on chemical, sensorial and microbiological properties of a regional dessert “*incir uyutması*” was studied in this research. Dry matter, pH, viscosity, water holding capacity (WHC), color properties (L*, a*, b* values), mineral matters (Al, Ca, Cu, Fe, K, Mg, Na, P and Zn), sensorial properties and microbial quality of dessert were affected by yoghurt cultures and other additives. Yoghurt cultures improved sensory characteristics and caused a decrease in the number of yeast and mold in desserts but also reduced WHC and pH. Salep and fig fruit concentration caused an important increase in the viscosity and the WHC of desserts. Consequently, yoghurt cultures improved functional properties and the storage stability of the dessert.

Keywords: *İncir uyutması*, Traditional dessert, Yoghurt culture, Quality

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İncir uyutması is a dairy dessert manufactured by the *Turks* in Anatolia and Middle Asia. The production of this dessert is very simple. Therefore, *incir uyutması* was traditionally produced by farmer families in Türkiye. These families live in the Aegean, Marmara and Mediterranean regions in which fig production widely takes place compared to the other regions of Türkiye. This dessert is produced for serving to guests and own consumption by families. In traditional manufacture of *incir uyutması*, figs are sliced into peaces and milk is boiled in a separate vessel, then sliced figs are mashed together with boiled milk and some sugar depending on the desire is added in the middle of mashing. Later, it is mixed until to obtain a homogeneous structure. The rest of the milk is added at the end of the mixing operation. The mixture is kept for 30 minutes at approximately 40°C. After storage in the freezer for 4-5 hrs, *incir uyutması* is ready for the service¹.

The fully ripe fig has bell or pear shape with succulent flesh. Fig fruit is naturally rich in many health benefiting phyto-nutrients, anti-oxidants and vitamins. Dried figs in fact are concentrated on the source of minerals and vitamins¹. Yoghurt cultures are

added to foods for improving of taste, flavor and functional properties. The texture and flavor of yoghurt come from different compounds such as non-volatile acids, volatile acids, and carbonyl compounds. The yoghurt bacteria produce exopolysaccharide to provide the desired textural and organoleptic characteristics including mouthfeel, gel firmness and viscosity. Additionally, they serve as probiotics for promoting consumers’ health. They also improve nutritional properties of milk products by producing vitamins such as niacin and folic acid. *Lactobacillus delbrueckii* subsp. *bulgaricus* has an ability to keep pathogens from attaching to the intestines and producing toxins that can lead to illness. In addition to removing toxins, *L. delbrueckii* subsp. *bulgaricus* also produces antibiotics that have immuno-boosting effects^{2,3,4}.

Salep is another ingredient used for *incir uyutması*. It is an important natural additive used in desserts in Türkiye. It is a common name given to salep species in Anatolia, Türkiye. The most important substance in salep is glicomannan giving it an important stabilizer capacity. Salep especially gives the special structure, taste and odour to a well known regional ice cream made in Maras in Turkey.^{5,6}

The objective of this study was to determine the effects of yoghurt culture on the physical, chemical, sensory, and microbiological properties of *incir uyutması* dessert during storage.

Methodology

The milk used in processing of *incir uyutması* was provided from stockbreeding pilot management of Selçuk University. The milk contained 9.5 gm 100 gm⁻¹ dry matter, 3.6 gm 100 gm⁻¹ fat, 3.6 gm 100 gm⁻¹ protein, 6.9 pH, 7.2 SH acidity and 1.030 density. *L. delbrueckii* subsp. *bulgaricus* Bulk Set FYE 41 LYO 100 1, *S. thermophilus* Bulk Set Y 572 LYO 500 1 and *Lactobacillus acidophilus* NCFM LYO 10 DCU (Danisco Deutschland GmbH Germany/Alemanha) cultures were originally obtained from Chr. Hansen's Lab (Denmark). The starter culture was activated in sterile non-fat dry milk according to the manufacturer's recommendations. Natural salep (9 gm water, 2 gm ash, 3.5 gm invert sugar and 12 gm starch per 100 gm) and dried fig fruit (4 gm protein, 55.3 gm sugar, 1.2 gm fat, 6.7 gm fiber, 138 mg Ca, 4.2 mg Fe, 91.5 mg, Mg, 163 mg P, 217 Kcal energy, 0.073 mg B1 and 0.072 mg B2 vitamins per 100 gm) were obtained from Kahramanmaraş city- Türkiye and from Tariş Co. in Türkiye, respectively.

İncir Uyutması Manufacturing

The formula and manufacturing steps for *incir uyutması* were given in Table 1 and in Fig. 1, respectively.

In *incir uyutması* manufacturing, raw milk was first filtered and heated for 20 min at 90 °C . After cutting

out the stems from the dried figs they were sliced into small pieces. Then, the fig sliced, salep and sugar were added into the heated milk and mixed for 5 min with a mixer. Following to obtaining a uniform texture, the mixture and the yoghurt culture were transferred into a sterile cup with lid and incubated for 3 hrs at 44°C. Finally, the product was stored for 12 hrs at about 5 °C for service.

Analysis Methods

Dry matter, pH, WHC, viscosity and mineral contents of the desserts were determined according to AOAC⁷, Bradley *et al.*⁸, Li & Guo⁹, Ogara *et al.*¹⁰ and Anonymous¹¹, respectively.

Color analysis

A Hunter colorimeter (Hunter Laboratories, Reston, VA, USA) was used to determine of Hunter L* (black

Table 1—The substances used in the formulations of *incir uyutması* desserts and their amounts

Sample No	Ingredients (%)				
	Sugar	Yoghurt Culture	Fig	Salep	
1	10	-	5	-	
2	10	-	5	0.7	
3	10	-	10	-	
4	10	-	10	0.7	
5	10	-	15	-	
6	10	-	15	0.7	
7	10	4	5	-	
8	10	4	5	0.7	
9	10	4	10	-	
10	10	4	10	0.7	
11	10	4	15	-	
12	10	4	15	0.7	

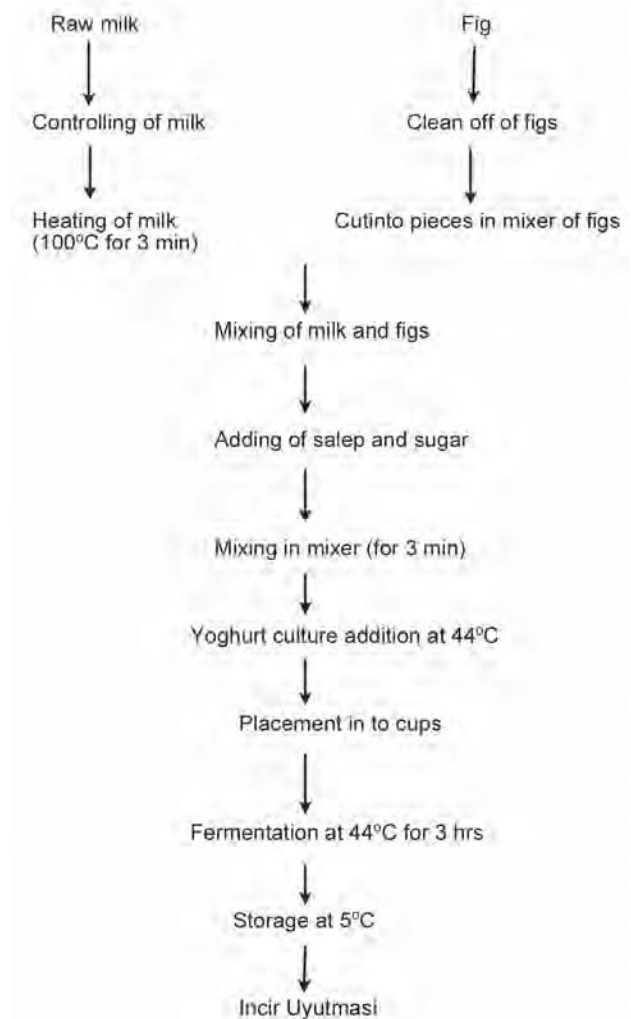


Fig. 1—Flow diagram of manufacture of *incir uyutması* dessert

to white), a* (green to red) and b* (blue to yellow) color parameters of *incir uyutması* samples¹².

Microbiological analysis

The number of total aerobic bacteria, mold and yeast, lactic acid bacteria (LAB) and coliform bacteria was determined as described by Marshall¹³. Microbiological tests were carried out in duplicate on the desserts with using standard PCA to enumerate total bacteria, VRB agar for coliforms, PDA for mold and yeast, and MRS agar for LAB growth (Difco, Detroit, MI, USA). The dispersion procedures and bacterial counting were applied as described by Richardson¹⁴.

Sensory evaluation

The sensory evaluation was carried out by 10 trained panelists according to the method modified from Bodyfelt *et al.*¹⁵ with maximum scores of 10 for flavor, 5 for texture and consistency, and 5 for appearance.

Statistical analysis

The data obtained from the physicochemical, rheological, microbiological and sensory analyses of the samples were statistically evaluated by variance analysis and comparisons were done with Duncan's Multiple Range Test¹⁶.

Results and discussion

Physicochemical properties

The physicochemical properties of *incir uyutması* samples are given in Table 2. As can be seen from the table, the physicochemical properties of the dessert samples showed significant differences depending on the additives. Increasing the amount of figs in desserts increased dry matter, WHC and viscosity values, but showed no significant change in pH value. Addition of salep in desserts, while not affected on dry matter and pH of desserts, led to significant increases in WHC and viscosity. While addition of yoghurt culture did not cause any significant change in the dry matter content and viscosity, it significantly decreased the WHC and pH of the desserts. The amount of dry matter in dessert samples prepared with 15% fig was recorded the highest with approximately 34 %. pH of the desserts varied between 5.655 and 6.033. pH values were found significantly higher in salep added samples compared to others, because the salep bound the free water and prevented the growth of acid-producing microorganism from lactose in the

dessert. Salep is produced from tubers of orchids that grow naturally in Maraş region of Türkiye. It constitutes the raw material of a traditional Turkish beverage and is used for giving hardness and elasticity to Maraş-type of ice cream as a hydrocolloid¹. Hydrocolloids bind certain chemicals (mostly polysaccharides and proteins) that are colloidal dispersible in water. Thus, they change the rheology of water by raising the viscosity and inducing gelation to become effectively "soluble"¹⁷.

The WHC of dessert samples displayed significant differences, ranged from 83.091 % to 96.215 %. Increasing salep concentration in the desserts led to significant increases in WHC. In the literature, it was stated that hydrocolloids like salep increase the WHC of dairy-based desserts¹⁸. However, yoghurt culture added samples showed significant reduction in WHC due to the acid-producing yoghurt culture. Lower WHC or whey separation is related to an unstable gel

Table 2—Some physicochemical properties of *incir uyutması* desserts

Additive	Dry matter (%)	pH	WHC (%)	Viscosity (cP)
Fig (%)				
5	26.700 c*	5.825 a	88.428 c	1892 c
10	29.752 b	5.856 a	89.441 b	2441 b
15	33.785 a	5.805 a	92.796 a	3250 a
Salep (%)				
Non	30.014 a	5.848 a	88.773 b	2307 b
0.7	30.144 a	5.809 a	91.670 a	2748 a
Yoghurt culture (%)				
Non	30.059 a	5.890 a	92.516 a	2502 a
4	30.098 a	5.767 b	87.928 b	2553 a
Sample				
1	26.725 e	6.033 a	92.523 bc	1581 j
2	26.792 e	5.876 de	94.123 b	2061 h
3	29.696 c	5.965 b	90.251 de	2165 g
4	29.752 c	5.911 cd	91.995 cd	2586 e
5	33.254 b	5.736 g	91.594 cd	3025 c
6	34.138 a	5.862 e	94.482 ab	3592 a
7	26.790 e	5.695 gh	86.204 f	1743 i
8	26.494 e	5.655 h	84.915 fg	2184 g
9	29.161 d	5.737 g	83.091 g	2335 f
10	29.991 c	5.737 g	88.250 e	2677 d
11	34.053 a	5.930 bc	88.726 e	2994 c
12	33.697 ab	5.813 f	96.255 a	3387 b

*Means in the same columns of physicochemical properties and factors with different superscripts are significantly different (p<0.01) among applications

network and excessive rearrangements of a weak gel network. The addition of acid composition in the system led to an acceleration of the aggregation of the caseins micelles, showed by the increase of the transmission level in the middle of the samples. These kinds of behaviors in dairy products is critical as it leads to an important decrease of the pH, hence there appear a modification of the colloidal stability. However, the results of a study display that was obtained that EPS-producing culture *S. thermophilus* ST1 may be effective in improving the viscosity and the WHC as well as reducing spontaneous whey separation. The microstructure of the fermented skim milk also showed the interactions between casein micelles and other components¹⁹.

The lowest viscosity in control sample and the highest in 15 % fig, yoghurt and salep added sample were determined. The high viscosity in foods primarily depends on the dry matter. In addition, salep contains approximately 11–44% high polysaccharides (glucomannan). Glucomannan is classified as a hydrocolloid and absorbs 200 ml of water per gram²⁰. Water soluble/dispersible polysaccharides, termed hydrocolloids or gums, are known as viscosity builders and gelling agents in aqueous systems. Technologists call them stabilizers, since they can improve long term stability in systems consisting of water and oil²¹. Strong interaction of salep and fig with dessert components, probably with caseins, may be anticipated due to a great increase in viscosity²².

As shown in Fig. 2, significant changes occurred in the physicochemical characteristics of dessert samples

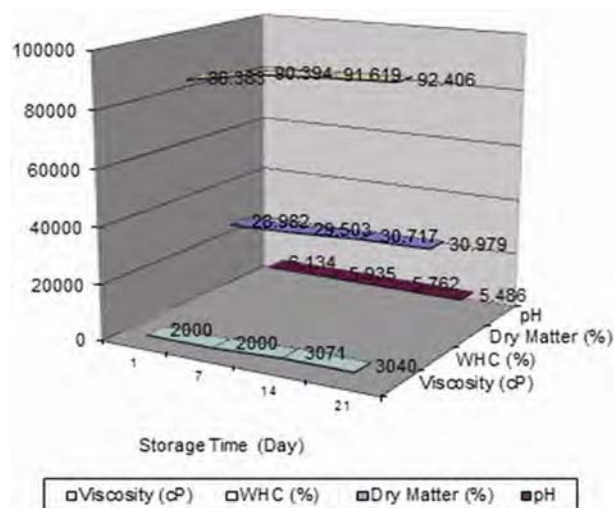


Fig. 2—Change in some physicochemical properties of desserts during storage

during storage. The amount of solids in the samples with an important increase reached from 28.982 % to 30.979 % at 21 days of storage. pH also indicated a significant reduction during storage (from 6.134 to 5.486). WHC and viscosity also increased from 86.383 % and 2000 cP to 92.406 % and 3040 cP during storage, respectively. The viscosity can increase during storage, possibly due to increasing hydration²³. WHC is one of the most important factors determining the storage stability. The water-binding function of hydrocolloids allows them to provide viscosity and/or a thicker, richer mouthfeel and to prevent syneresis²⁴. Stabilizers interact with milk proteins, water and other stabilizers to modify the gel structure and immobilize water. Product functionality depends on dispersibility, ions present, temperature and interactions with proteins and other hydrocolloids. When the caseins are solubilized, conditions are more favorable for hydrocolloid interactions with protein, leading to stronger gels and greater water immobilization²⁵.

When the pH is too low, it will cause the decrease of the WHC that can affect existing emulsion systems. It was reported that the use of hydrocolloids in dairy formulations; such hydrocolloids physically stabilized a dispersed material and/or improved texture, resulting in high viscosity²⁶. Similar to our findings, higher viscosity values were observed in fructose containing yoghurts²⁷. Similar physicochemical results in *incir uyutması* desserts were found in previous study⁶.

The detected amounts of mineral matter on the 21st day of storage, depending on the additional additives have shown significant differences between dessert samples. In general, the amount of Ca, Al, Zn, Cu, Mg, Na, and P depending on the amount of added fig fruit showed a significant increase. These means showed that the added figs provided significant mineral substances for *incir uyutması*. The amount of Na and K exhibited a significant reduction in desserts. Also the addition of salep led to important changes in the amounts of mineral matter (Table 3). This is in agreement with the results obtained by Ayar et al.⁶. Mg and Ni contents in yoghurt culture added desserts increased, other mineral matters did not change. Fruits are rich sources of various important phytonutrients namely, vitamins, minerals, antioxidants and dietary fibers. Various researchers have also described the effect of fruit addition on mineral contents of yoghurt and desserts²⁸.

Table 3—The mineral contents of *incir uyutması* desserts at storage end (mg/100 gm)

Additive	Ca	Al	Zn	Cu	Fe	K	Mg	Na	Ni	P
Fig (%)										
5	164 b*	3.107 b	1.067 c	0.059 b	2.216 a	362 a	42.442 b	52.392 b	0.006 c	156 b
10	172 b	3.271 b	1.165 b	0.069 ab	2.377 a	297 b	44.550ab	56.283 a	0.0065 b	164 ab
15	187 a	3.806 a	1.294 a	0.075 a	2.406 a	294 b	47.045 a	55.72 a	0.0083 a	173 a
Salep (%)										
Non	174 a	3.151 b	1.137 b	0.063 b	2.153 b	318 a	43.11 b	53.413 b	0.0077 a	158 b
0.7	176 a	3.638 a	1.214 a	0.073 a	2.513 a	317 a	46.248 a	56.184 a	0.0057 b	171 a
Yoghurt culture (%)										
Non	173 a	3.482 a	1.222 a	0.065 a	2.210 a	322 a	43.186 b	53.164 b	0.0060 b	166 a
4	176 a	3.308 a	1.129 b	0.071 a	2.456 a	313 a	46.172 a	56.433 a	0.0075 a	163 a

*Means in the same columns of mineral matters and factors with different superscripts are significantly different ($p < 0.01$) among applications

Sensory properties

The evaluation results of sensory properties such as flavor, color and appearance, texture and consistency, the general acceptability of the dessert samples are shown in Table 4. As can be seen from the table, additional amount of fig fruit and salep did not have a considerable effect on the taste. Yoghurt culture increased to the taste properties of the dessert samples ($p < 0.01$) at considerable amount. It was found that there is a positive correlation between flavor and acidity and attributed this effect to a coupled acid and acetaldehyde production. The following conclusion was reached that acetaldehyde is an important aroma compound but that acidity and degradation of proteins also influence the flavor in fermented dairy products that are added lactic acid bacteria²⁹.

The general acceptability scores of the dessert samples have varied between from the 11.230 points (5% fig and salep added sample) to 15.752 (15% fig, salep and yoghurt cultures added sample) and showed significant differences between samples ($p < 0.01$). In terms of the concentration of the fig, the highest overall acceptability score was 14.080 in 15% containing fig fruits sample. The increasing amount of figs increased acceptability of samples. The general acceptability scores of yoghurt cultures added samples also significantly increased ($p < 0.01$). During storage, the overall acceptability scores decreased from 15.745 to 11.856 ($p < 0.01$) (Fig. 3). During fermentation, *S. thermophilus* produced lactic acid and formic acid which activated growth of *L. bulgaricus* that produced diacetyl and acetaldehyde. These compounds gave typical yoghurt flavor³⁰.

The sensorial properties of *incir uyutması* desserts with yoghurt culture showed similar changes during

Table 4—Sensorial properties of *incir uyutması* desserts

Additive	Flavour (Max. 10 point)	Color and appearance (Max. 5 point)	Texture and consistency (Max. 5 point)	General Acceptability (Max. 10 point)
Fig (%)				
5	6.288 a*	3.351 a	3.228 b	13.332 b
10	6.334 a	3.255 ab	3.248 b	13.446 b
15	6.633 a	3.122 b	3.464 a	14.080 a
Salep (%)				
Non	6.292 a	3.182 a	3.215 b	13.336 b
0.7	6.545 a	3.303 a	3.411 a	13.903 a
Yoghurt culture (%)				
Non	5.937 b	3.030 b	3.133 b	12.711 b
4	6.899 a	3.455 a	3.494 a	14.528 a
Sample				
1	5.870 cd	3.292 abc	3.462 abc	12.625 f
2	5.225 d	2.777 cd	2.630 d	11.230 g
3	6.132 bc	3.040 bcd	3.057 cd	12.812 f
4	6.490 bc	3.622 a	3.590 abc	13.672 def
5	6.015 cd	2.665 d	3.052 cd	12.697 f
6	6.245 bc	3.070 bcd	3.020 cd	13.100 ef
7	5.997 cd	3.182 abcd	3.247 bc	13.450 def
8	6.967 ab	3.357 ab	3.252 bc	14.000 cde
9	7.597 a	3.730 a	3.907 a	15.352 ab
10	6.435 bc	3.195 abcd	3.177 bcd	14.372 bcd
11	7.577 a	3.687 a	3.585 abc	14.900 abc
12	7.832 a	3.555 ab	3.692 ab	15.752 a

*Means in the same columns of sensory properties and factors with different superscripts are significantly different ($p < 0.01$) among applications

storage in our study. There were interactions among used ingredients and milk dessert properties³¹. In addition, the acceptability showed a continuous and significant decrease during storage. The type of flavors used in a milk product can also influence its stability: coffee and caramel flavors can destabilize a

In this study, the results showed a noteworthy negative correlation between sensory color and parameter a^* and b^* , and significant positive correlations with parameter L^* in terms of fig concentration. The important differences were determined between color properties of vanilla-added dairy desserts³¹. The results indicated a significant positive correlation between sensory color and

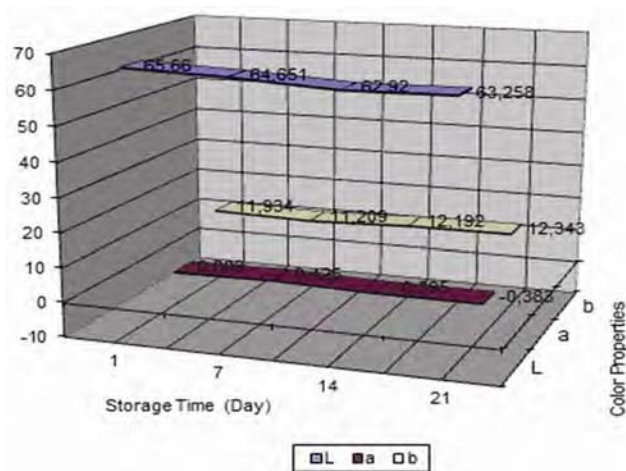


Fig. 4—Change in color properties of desserts during storage

parameter a^* , and significant negative correlations with parameter L^* . No significant correlations were found between sensory color data and b^* parameter. In espresso desserts manufactured using different sugar, the color properties showed significant differences. While L^* and b^* values were in parallel, a^* value exhibited a reverse relation with these values³³.

Microbiological properties

The addition of yoghurt culture has led to significant changes in the number of microorganisms. The addition of culture increased the number of LAB, from 1.731 to 3.655 log CFU/ml. Depends on the amount of figs in the dessert, the numbers of total bacteria, yeasts and molds, and LAB showed significant changes. The number of total bacteria increased with increasing amount of figs. This increase was significant between 5% to 10% and 15 % fig added desserts. The addition of salep did not cause significant changes in the number of microorganisms (Table 6). Traditional yoghurt bacteria have positive effects as a result of fermentation metabolites, either by an inhibitory action towards pathogens or improvement of lactose digestion. *S. thermophilus* has a high oxygen utilization ability, which results in the depletion of dissolved oxygen in yoghurt³⁴. The number of yeast and mold showed a significant reduction with the addition of yoghurt cultures. There had not been significant change in the number of total bacteria. Coliform bacteria were not detected in desserts samples.

Total aerobic bacteria, yeast and mold count in the desserts during storage showed a significant

Table 6—The microbiological properties of *incir uyutması* desserts (log CFU/ml)

Additive	Total aerobic bacteria	Mold and yeast	Lactic acid bacteria
Fig (%)			
5	5.103 b*	2.391 a	2.725 a
10	5.886 a	2.278 a	2.610 a
15	6.001 a	2.435 a	2.744 a
Salep (%)			
Non	5.675 a	2.420 a	2.766 a
0.7	5.652 a	2.316 a	2.620 a
Yoghurt culture (%)			
Non	5.573 a	2.768 a	1.731 b
4	5.754 a	1.968 b	3.655 a
Sample			
1	5.044 e	2.954 b	1.738 f
2	5.714 c	2.527 e	1.499 h
3	5.804 c	2.702 d	2.217 e
4	4.995 e	3.038 a	1.764 f
5	5.726 c	2.560 e	1.539 h
6	6.154 a	2.824 c	1.630 g
7	5.184 d	1.824 I	3.792 a
8	6.023 b	1.921 h	3.725 b
9	6.146 a	1.966 h	3.627 c
10	5.189 d	1.745 j	3.609 c
11	6.082 ab	2.104 g	3.675 bc
12	5.819 c	2.249 f	3.505 d

*Means in the same columns of microbiological properties and factors with different superscripts are significantly different ($p < 0.01$) among applications

increase, however, the numbers of LAB significantly decreased (Fig. 5). The studies have shown that the viability of yoghurt cultures decreased after 7 day of storage³². Respectively, numbers of LAB, yeast and mold, and the total aerobic bacteria at the beginning of storage were 3.315, 1.221 and 4.852 log CFU/ml, at the end of the 21st day of storage, they were 1.545, 3.774 and 6.613 log CFU/ml. Similarly, in espresso desserts, it was determined that coliform count was less than 1 log CFU/g and increasing dry matter decreased the microorganism load³³.

Nutritional and Economical assessment

In Türkiye, the nutritional state of people varies significantly by region, season, socioeconomic level and urban-rural settlement. 29.5% of the population of Türkiye lives in rural areas. The agricultural sector has still been maintaining its importance in terms of employment besides its importance in socio-economic life. About 56.44% of total monthly expenditure of

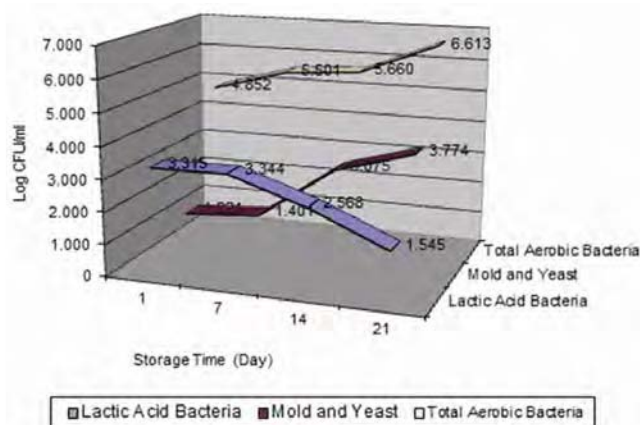


Fig. 5—Change in some microbiological properties desserts during storage

rural households represents the value of consumption from own resources. The most important parameter influencing the food consumption pattern is income level and ignorance. Low-income families consume more bread, while high-income families consume more meat and meat products³⁵.

The industrial processing of figs fruits is very limited in Türkiye. Fruits are widely consumed as fresh and dried. Therefore, the technological evaluation of figs has been a great importance. Local products such as *incir uyutması* play an important role for well-balanced diet of people living in rural areas. The financial status of people in these regions is weak. These people are engaged in farming. Generally, this dessert is produced and consumed by families living in rural areas. Therefore, the amount of production and consumption are not known exactly¹. However, it is known to have recently started to produce by dessert plants and catering plants. The trend of consumers in natural and pure foods has increased interest in these type desserts.

Incir uyutması is a valuable nutrient that mainly contains milk, sugar and fig which is an important fruit in terms of minerals and carbohydrates. Any other additive is not added in this dessert in the production traditionally. Only, a small amount of sugar is optionally added in dessert. Yoghurt culture and natural hydrocolloid such as salep can be used in the industrial production of *incir uyutması*. Due to these properties, *incir uyutması* is a natural dairy dessert. In general, the manufacturing cost of *incir uyutması* is low. The cost of 1 kg dessert is about 1dollar. For this reason, low-income consumers are also interested in this dessert.

Sweets have played an important role to meet the recommended daily nutritional and daily energy needs of consumers in Türkiye. 1 cup (250 gm) of *incir uyutması* contains about 350 kcal of energy and about 10 gm of protein. It has been expressed that rural residents in Türkiye have to take energy in 2156 Cal, agricultural laborers have to take in 2474 Cal according to Prime Ministry State Planning Organization³⁶. 1 cup dessert meets approximately 15 % of the daily energy requirement. It is able to meet the protein needs of consumer daily diet, which ratio is between 15 and 20 %. Ca, Fe, and P in a cup dessert meet 80-90 %, 40-50%, and 50-60% of recommended dietary allowance for consumers, respectively.

Conclusion

The locally produced dairy products are particularly popular in these days. They are made suitable for the production technology with the aid of new ingredients and technologies that the dairy industry has, it became easier the incorporation of new flavors, products of higher digestibility and with a high nutritional value especially for children. It appears that accentuating the positive attributes of inherent milk constituents, incorporating health-promoting cultures, and offering a variety of flavors and textures to the consumer could enhance fermented milk and dessert consumption.

In conclusion, it needs to be emphasized that yoghurt cultures, salep and fig addition had considerable effect on the properties of locally produced *incir uyutması* dessert. Yoghurt cultures improved sensory characteristics, increased viscosity and caused a decrease in the number of yeast and mold in desserts but also reduced WHC and pH. The viscosity and WHC were significantly increased by salep addition. Color properties of the samples were affected by the ingredients used. Yoghurt cultures in *incir uyutması* dessert improved the storage stability. As a recommendation for future studies, functional properties can be supplied to *incir uyutması* dessert by adding different probiotic cultures and prebiotics.

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