

Microbiological Attributes of Tahin (Sesame) Helva Sold under Market Conditions in Manisa

Betül Kaya¹ and Bulent Ergonul^{1*}

¹Celal Bayar University, Engineering Faculty, Food Engineering Department, Muradiye Campus, Muradiye, Manisa, Turkey.

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In this study, microbiological attributes of tahin helva samples sold under market conditions in Manisa city center were determined. According to findings obtained, it was observed that Total Mesophilic Aerobic Bacteria counts of the samples were among <1.0 log cfu/g and 2.78 log cfu/g; Mold and Yeast counts of the samples were among <1.0 log cfu/g and 1.95 log cfu/g and Coliform group bacteria, *Staphylococcus aureus* and *Escherichia coli* were not found in any of the samples.

Key words: *Tahin helva*, microbiological attributes, pathogens.

Tahin (sesame) helva is a traditional dessert of Middle Eastern countries manufactured by using sugar, water, citric or tartaric acid, çöven (*Radix saponariae Albae sive* L.) extract and modified proteins and also sesame. For manufacturing this helva, sugar, citric acid and water are boiled together, çöven extract is added into mixture and white thick syrup is obtained. Into this thick syrup, grinded sesame (tahin) is added and then cooked together. At the end of the proses a fibrous homogeneous and a hard dessert is obtained¹. Also, cocoa powder, walnut, nut or peanut can be added into this widely consumed dessert². Tahin has a high nutrition value and its manufacturing is storage is so easy and it is known as an economic and cheap dessert². It is mostly

consumed in winter and it is known that this dessert is also widely known in Middle Asia and North Europe⁴.

Tahin helva has a long shelf life because of its low water content². But microbiological attributes of raw materials used for helva manufacturing is of great importance in terms of microbiological quality of the final product. On the other hand, helva is generally produced under poor hygienic conditions in quite small plants in Turkey and most of the local producers use stretch film instead of packaging material to package the final product⁴. Microbiological attributes of helva sold under market conditions is important in terms of food safety and consumer health. In this research it was aimed to determine the microbiological attributes of helva samples produced by local manufacturers and sold under market conditions in Manisa city center. Results of the analyses were also compared with the criteria given in Turkish Food Codex Communication for Microbiological Criteria¹. Up to our knowledge there are a few published international material presenting the data related to microbiological attributes of Turkish tahin helva.

* To whom all correspondence should be addressed.
E-mail: bulent.ergonul@hotmail.com

MATERIAL AND METHODS

Material

Helva samples from 17 different local manufacturers and sold under market conditions were collected in city center of Manisa. Samples were brought into Microbiology Laboratory of Celal Bayar University and were analyzed immediately.

Method

As indicated in in Turkish Food Codex Communication for Microbiological Criteria¹, total yeast and mold count, total mesophyllic aerobic bacteria count, coliform bacteria count, *Staphylococcus aureus* and *Escherichia coli* counts of the sampler were performed. 10 g of helva samples were weighed and homogenized by using 90 ml peptone water in stomacher bags and further decimal dilutions were prepared aseptically⁵.

Total mesophyllic aerobic counts of the samples were determined by using pour-plate method and colonies were counted on Plate Count Agar (PCA, Merck) after an incubation at 35-37°C for 24-36 hours⁶. Yeast and mold counts of the samples were determined by using Dichloran Rose Bengal Chloramphenicol Agar (DRBC, Merck) and petri dishes were kept in incubator at 25-27°C for 3-5 days⁶. *Staphylococcus aureus* counts of helva samples were enumerated on Baird Barker Agar (BPA, Oxoid) containing sterile egg yolk and potassium tellurite as additives. Incubation was at 37°C for 30-48 hours. Bright black colonies having a zone around were enumerated⁷. For the enumeration of *Escherichia coli* Sorbitol McConkey Agar (SMAC, Oxoid) used. Petri dishes were incubated at 37°C for 24 hours. Lauryl

Sulphate Tryptose Broth (LSTB, Merck) was used for coliform bacteria count and method was the probable number. Incubation was achieved at 37°C for 24-48 hours and test tubes having turbidity and gas formation in Durham tubes were counted as coliform positive. Verification was done by using Lactose Bile Brilliant Green Broth (LBBGB, Merck)⁷.

RESULTS AND DISCUSSION

Microbiological analyses counts of helva samples were given as Table 1. As seen, coliform bacteria, *Staphylococcus aureus* and *Escherichia coli* were not detected in any of the samples. Total yeast and mold counts of the samples were among <1.0 log cfu/g and 1.95 log cfu/g, whereas total mesophyllic aerobic counts of the samples were changing among the values of <1.0 log cfu/g and 2.78 log cfu/g. According to Sengun et al. (8), total mesophyllic aerobic bacteria count of helva sold in Ozmir was among 1.0 log cfu/g and 5 log cfu/g. Also coliform bacteria were found in the microflora of helva samples. *S.aureus* was not detected in any of the samples.

Kahraman *et al.*,⁹ reported that 33% of tahin helva samples sold under market conditions were of unacceptable quality based on recommended criteria of microbiological quality by Turkish Food Codex. When our findings and criteria given in Turkish Food Codex Communication for Microbiological Criteria for Foods are taken into account, it can be concluded that microbiological attributes of tahin helva consumed and sold in Manisa are in conformity with the legislation in terms of food safety and consumer health.

Table 1. Microbiological attributes of tahin helva samples (cfu kob/g) (n=17)

Yeast and Mold Count	Total Mesophyllic Aerobic Bacteria Count	Coliform Bacteria Count	<i>Staphylococcus aureus</i>	<i>Escherichia coli</i>
<1.0 – 1.95	<1.0 – 2.78	<1.0	<1.0	<1.0

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