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Quality And Safety Of Some Food Products Offered In Sidewalk In Local Market

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Abstract: *The study aimed to know the quality and safety of some canned food products which sold out of its suitable place, by using microbiological detection of (10) of these samples collected randomly from hawkers who sell these products in the sidewalk of different places in the market of Baghdad city. Microbiological analysis results demonstrated that all of these samples are safe and valid for human consumption compared with Iraqi standard of microbial limitation in food.*

Keywords: *food products, quality and safety, canned food.*

I. Introduction

Obtaining of food with a good quality has been the main objective of the human since the early days of his existence. Food safety is a prerequisite for its quality. "Food safety" means that the food is free or in safe level from: contaminants, fraud substances and toxins which are naturally existence, or any other substance that may make food harmful to health in a severe or chronic manner. Food quality can be considered as a compound property for food that determines its value by consumers and their acceptability to it. In addition to safety, quality characteristics include: nutritional value, sensory properties such as appearance, color, texture, taste, and functional properties (1).

A number of studies have been carried out in the science of packaging in order to provide certain conditions in food package, for maintaining the quality and safety of the food and in order to reach the consumer in safe condition and to fulfill his desire. But in some cases the same packaging materials may be caused of the deterioration or spoilage the qualities of the packaged products such as in the case of interactions between food and the interior wall of the cans, causing chemical changes in the nature of the packaged food and then make changes in the qualities of its quality. Also it is important to preserve packaged food, prevent it from spoilage by microorganisms, so food cans whether made from metal or glass should be well closed and not to open to air or microorganisms (2).

II. Materials And Methods

1. Collection of samples

Ten samples of various canned food products have been collected, which sold in the sidewalk of different places of Baghdad city by hawkers. The validity of all samples tested were within the period specified by the manufacturer, the information given in the labeling of all the samples were verified and recorded before testing in the laboratory of microbiology at Market Research and Consumer Protection Center / University of Baghdad as it details in Table 1.

Table1: Canned Food Samples.

N.	Samples	Origin	Date of Production and Expiry	Condition of Cans when Shopping	Date of Shopping from Market
1	Luncheon Chicken	Saudi	7/9/2015 – 6/9/2017	Good	1/10/2016
2	Sardine	Morocco	8/10/2015 – 7/10/2017	Good	25/5/2016
3	Tomato Ketchup	Saudi	21/7/2016 – 20/7/2017	Good	5/9/2016
4	Biscuit	Malaysia	20/5/2016 – 19/2/2017	Good	10/9/2016
5	Jam	Turkey	27/4/2016 – 28/4/2018	Good	18/9/2016
6	Dried Milk	Emirates	1/12/2015 – 1/6/2016	Good	10/6/2016
7	Cream	Kuwait	13/11/2015 – 12/5/2016	Good	8/4/2016
8	Cooked Cheese	Saudi	26/10/2015 – 25/4/2016	Good	8/4/2016
9	Processed Cheese	Austria	12/5/2015 – 10/5/2016	Good	8/4/2016
10	Sweetened Milk	Singapore	1/9/2015 – 1/8/2016	Good	8/4/2016

2. Quality Assessment

2.1. Sensorial assessment

Direct method (personal) was considered to determine the quality of canned food samples (3). Sensorial qualities such as taste, flavor and color was evaluated by assessors, all canned samples were in good quality.

2.2. Microbial assessment

Microbiological tests were carried out of the canned food samples according to (6, 7, and 8). 1 gram of each food samples was taken for testing, then decimal dilutions were prepared and planted in Petri dishes which contain suitable media to detect the type of microorganisms and its counting, where the count of microorganisms was done according to the Iraqi standard of microbial limits in Food (4).

-Total Plate Count: Plate Count Agar is used as a media to estimate the total count of microorganisms.1 ml of each dilution put by a sterile pipette into a Petri dish individually and then the media pours after cooling to 45°C. The dishes are quietly moved to homogenize and to spread well and then left to solidify, Petri dishes inverted and incubated at 37°C for 24 hours, the number of developing colonies calculated in the dishes.

-Total Coliform bacteria: Violet Red Bile Agar (V.R.B.A) is used as media to estimate the numbers of coliform bacteria. The media poured into the dishes and left to solidify. 1 ml of the appropriate dilution put in the media and spread well on the surface and then pours another layer of media to provide non-aerobic conditions. Dishes left to solidify and then inverted and incubated at 37°C for 24 hours. Developing colonies in the media calculated to estimate the number of coliform bacteria.

-Salmonella bacteria: Salmonella-Shigella Agar (S.S.A.) is used as a media for detection of Salmonella. 1 ml of the sample added to 9 ml of Selenite F.Broth (prepared by dissolving 19 g of Selenite F.Broth A and 4 g of Selenite F.Broth B in amount of distilled water and the volume completed to 1 liter), incubated at 37 ° C to the next day, and then planed above the media (S.S.A.), dishes incubated at 37°C for 24 hours. Salmonella isolated and identified in this research by using biochemical tests (7) which includes: (Triple sugar iron agar, Lysine decarboxylase, Urease, Indole, Methyl red, Simmons citrate utilization).

-Staphylococcus bacteria: Manitol Salt Agar is used as a media to estimate the Staphylococcus bacteria, where the media poured in Petri dishes and left to solidify.1 ml of the appropriate dilution put in the dishes and spread well and then dishes inverted and incubated at 37°C for 48 hours. Developing colonies in the media calculated to estimate the number of Staphylococcus bacteria.

-E.coli bacteria: Macconkey agar is used as a media to estimate the numbers of E. coli bacteria. The media poured in Petri dishes and left solidify. 1 ml of appropriate dilution put in the media and spread well on the surface. Then, another layer of media poured to provide non-aerobic conditions. Dishes left to solidify and then inverted and incubated at 37°C for 24 h. developing colonies in the media calculated to estimate the number of E. Coli bacteria.

2.3. Testing by the Equipment Bactrac 4300

E.Coli

The special media for fecal coliform bacteria is prepared by dissolving of 17.8 g of Bimedia150B base with 2.5 g of (Additive) 150 B/1 with 0.45 g of (Additive) 150 B/2 with 17.5 g of sodium chloride in 500 ml distilled water, then the media put in water bath at 103°C for 10 minutes. (The media not put in the Autoclave because it is sensitive and it will deteriorate by high temperature). After that, the media put in the glass bottles of the equipment Bactrac 4300 after completion of the decimal dilution. The incubation is 40°C for 24 hours, and then the results obtained.

Salmonella

Bimedia 205A is used as a media, where 12.3 g of the media dissolved with 2.8 g of (Additive) 205 A in 500 ml distilled water and then placed in water bath at 60°C for 10 minutes. The media put in the glass bottles of Bactrac 4300 after completion of the decimal dilution. The incubation is 37°C for 24 hours, and then the results obtained.

Total Viable Count (TVC)

Bimedia 001B is used as a media, where an amount of this media dissolved with distilled water and completed to 1 liter and then sterilized by the Autoclave at 121°C for 15 minutes and refrigerated. The substance to be examined put on it and incubated by Bactrac at 37°C for 24 hours, and then the results obtained (9).

III. Results And Discussions

Microbiological test results demonstrated that all samples tested are safe and conformed with microbial limitation in accordance to Iraqi standard of microbial limitation in food (4) and as it illustrated in Table 2. This approved too by testing by Bactrac Equipment 4300 as mentioned in 2.3., where the results obtained by this technique demonstrated conformity with the results in Table 2.

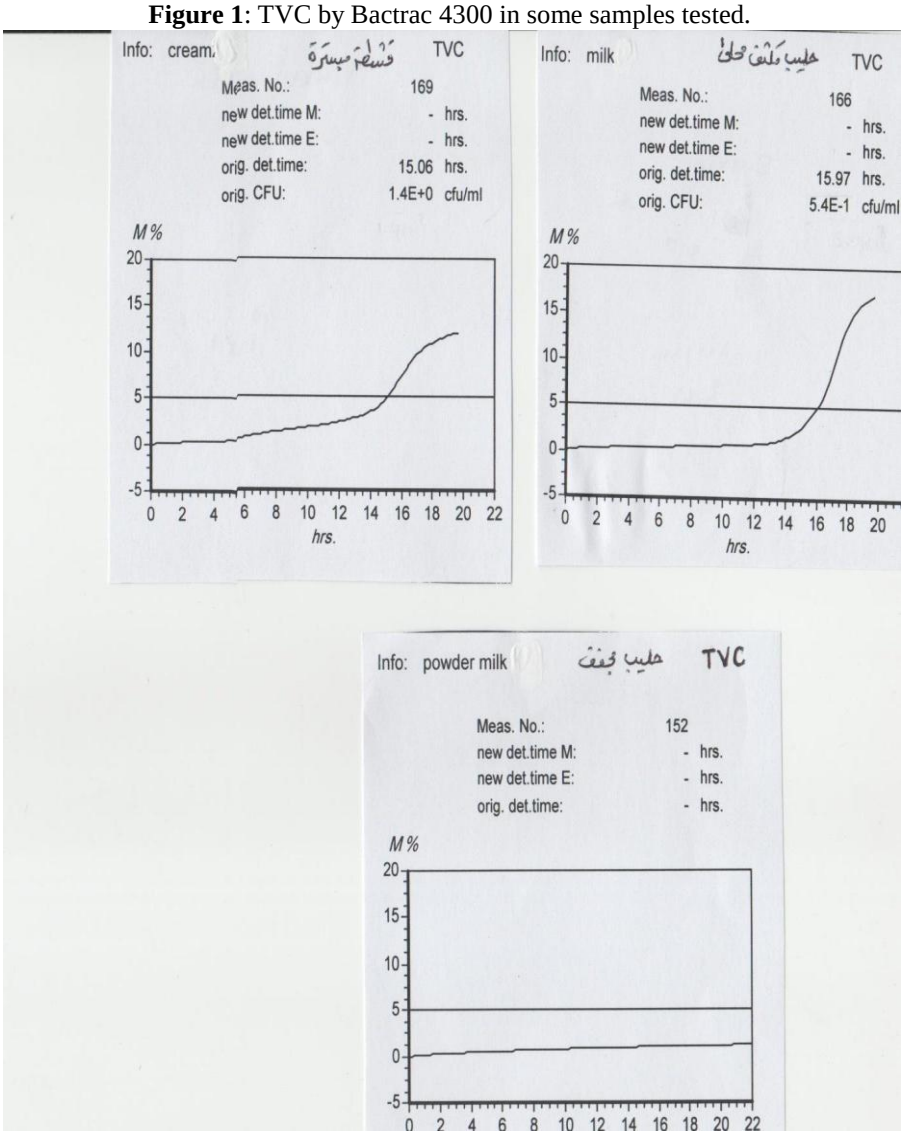
Figure 1 describes some of the results of Total Viable Count (TVC) in Sweetened Milk, Cream and Dried Milk by using Bactrac 4300.

Table 2: Microbial count in samples tested.

N.	Samples	TVC	Coliform	E.Coli	Staphylococcus	Salmonella
1	Luncheon Chicken	* ……	0	0	1×10^{2}	Negative
2	Sardine	4×10^{2}	0	0	0	……
3	Tomato ketchup	4×10^{2}	……..	……	……..	Negative
4	Biscuits	……	0	0	……	Negative
5	Jam	After	incubation	35°C/10 days	No changes	happened
6	Dried Milk	1×10^{2}	0	0	……..	Negative
7	Cream	0	0	0	……..	Negative
8	Cooked Cheese	2×10^{2}	0	0	0	Negative
9	Processed cheese	5×10^{4}	0	0	0	Negative
10	Sweetened Milk	36×10^{3}	……	…….	1×10^{2}	Negative

* Means that no test found in the Iraqi standard.

Figure 1: TVC by Bactrac 4300 in some samples tested.



From this it is clear that the phenomenon of selling canned food products in the sidewalk intended to marketing of these products quickly to the Iraqi consumers under the policy of goods dumping of Iraqi market where food products, occupies an advanced rank among the goods exported to Iraq in accordance to the statistics of the Iraqi Ministry of Industry (5). Some of expiry date of a lot of food products exported to Iraq founded in the end, this matter makes food retailers in the local market offer these goods in the sidewalk by hawkers with a low price compared with the same goods sold in dedicated shops, in order to sell it quickly before the expiry date ended and then spoilage and not to be valid for human consumption.

References

[1]. Food and Agriculture Organization. (1999). The importance of food quality and safety in developing countries. Food Security Committee / FAO.
[2]. Albilany, Shammon. (1988). Qualiy control and food standard. Edition Almosel-Iraq.
[3]. Sagidy, Adel. (2000). Food Industries, Part 1. Edition Baghdad-Iraq.
[4]. Center of Standardization and Quality Control. (2015). Iraqi Standard for Microbial Limitation in Food. CSQC.
[5]. General Directorate for Industrial Development. (2015). Quality and Safety of Food Products. Iraqi Ministry of Industry.
[6]. APHA. (1998). American Public Health Association. Compendium of methods for the Microbiological Examination of food .Ed Washington. D.C.
[7]. AOAC (2015). Meat and meat products. Official methods of analysis of AOAC . Ed. Association of official analytical chemists ,Gaithersburg,MD.
[8]. Ranjan,K.D. (2007). Textbook of diagnostic microbiology .Medical College and hospital, medical publishers Ltd, Newdelhi.PP:124.
[9]. BacTrac 4300. (2013). Microbiology of food and animal. Food method validation FDIS published.