

## SOME ASPECTS REGARDING THE STORAGE OF FOODSTUFFS IN FOOD PROFILE UNITS

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### Abstract

Foods may undergo mechanical, chemical or microbiological changes in all stages of the food chain, under the action of various factors.

This study follows how food is stored in a unit where food is marketed and in a unit where food is prepared and served. During storage, foods undergo a number of phenomena and transformations. These occur because the foodstuffs have a relative stability over time, influenced by internal (structural) and external factors, which can modify their fundamental properties, through processes of degradation, alteration, chemical or microbiological contamination, impurities with foreign substances, etc.

The perishability of food can be determined by a variety of causes, including:

- breathing (in plant products);
- evaporation (meat and meat preparations, cheeses, soaps, etc.);
- volatilization (for alcoholic beverages);
- Fragmentation (in cheeses, flours, dehydrated vegetables and fruits, flours);
- the diffusion of water or fat through packaging (cheeses, fats, halva, etc.);
- mold (vegetable products, etc.);
- cutting at sales operations (cheeses, salami, etc.);
- agglomeration (ex: milk powder);
- breaking and spilling (liquid products packed in glass containers, eggs, etc.)
- impregnation (soaking) of certain types of packaging (eg textile bags) with products in powdered state (flour, wheat, sugar, etc.).

Considering these, in any type of unit with food profile, special attention is paid to the way in which food is stored, both raw materials and finished products.

The current research highlights how in two units with food profile the food is stored taking into account the degree of food perishability.

**Key words:** food, hygiene, storage, perishable

### MATERIAL AND METHOD

The study consisted in comparing the way of storing food products in two units with food profile, one of production and one of food distribution, respectively the store S.C. "Elena Carol" SRL ("La Doi Pași") and Restaurant Iriss Guesthouse.

At the same time, the causes that influence food security were highlighted, in order to analyze how food is stored.

To this end, the following were used:

- Documentation based on the entry and exit sheets of food from suppliers and declarations of conformity for the goods received in the two units
- Observation of the conditions under which food products are stored and their compliance
- Analysis of the foods to be given for consumption
- Interview with the unit managers and their employees.

### RESULTS AND DISCUSSION

In each of the two units, perishable products are stored in refrigerators, separate

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for each type of food. The temperature is checked daily and noted in the control register, by the person designated by the unit manager.

Iriss Restaurant works with chilled and frozen meat. Chilled meat is stored in refrigerators, depending on the species from which it comes. Frozen meat is stored in freezers at -18 ..- 20°C depending on the type of meat: pork and beef is stored at -18°C, and sheep meat at -20°C.



Fig. 1 Refrigerated display case with meat preparations in the shop

The meat preparations are stored in a special refrigerator.

The grocery store S.C. "Elena Carol" SRL is sells frozen meat (fig. 2). It is stored in freezers at -18°C. Meat preparations are stored in the grocery store in refrigerated display cases (fig. 1) At 0-4°C. As customers buy daily preparations, they fill in the need for products purchased at the beginning of each day. Refrigerated showcases are cleaned weekly and whenever necessary (table 1).



Fig. 2 Freezer from S.C. "Elena Carol" SRL

Table 1 Temperature monitoring table in the meat refrigerator of the Restaurant-Pension Iriss unit

Temperature measured	Optimum temperature of storage	Date of verification
3°C	0-4°C	03.02.2019
2°C	0-4°C	04.02.2019
1°C	0-4°C	05.02.2019
0°C	0-4°C	06.02.2019
3°C	0-4°C	07.02.2019

In the restaurant, the fish is purchased and cooked only in fresh condition. Upon receipt, the freshness of the fish is appreciated by its organoleptic properties. Until cooking it is stored in refrigerators at 0-4°C.

S.C. Store SRL ("La Doi Pași") sells frozen fish.

The freezer is often monitored to avoid temperature fluctuations, which can irreparably affect the fish, and can never be marketed. The storage temperature of the frozen fish is -18°C.

Both in the Iriss Pension Restaurant and in the "Elena Carol" store, milk and dairy

products are stored in the refrigerator especially for these, without foreign odors. The temperature of 0-4°C is ensured, which is permanently monitored through the monitoring sheets, avoiding sudden temperature changes (fig. 3-4).

In the grocery store S.C. "Elena Carol" SRL and in the Restaurant-Pension Iriss the eggs are kept in the fridges with the height of 1.8 m, clean, dry and without foreign smell, at the temperature of 0-4 ° C and the relative humidity of the air of 80-85 %. Due to the fact that the egg is a very perishable food, a temperature monitoring sheet is displayed on the fridges (fig. 3-4).



Fig. 3 Refrigerator for dairy products in Restaurant-Pension Iriss unit



Fig. 4 Fridge with dairy products in the store

In the grocery store S.C. "Elena Carol" SRL ("La doi Pași"), fruits and vegetables are supplied daily to be marketed fresh and stored in plastic crates at 12-15°C. Therefore,

there are no traces of deterioration or stains on their surface (fig. 5). In the restaurant, some vegetables are kept in the refrigerator (fig. 6).



Fig. 5 Fruits placed in shelves in the grocery store S.C. "Elena Carol"



Fig. 6 Refrigerator for vegetables and vegetables in the Restaurant Iriss Guesthouse

The fats used in the Restaurant-Pension Iriss unit are sunflower oil, olive oil and butter. They are stored at 4-10°C in clean dry and ventilated rooms. The butter is stored in refrigerators at 0-4°C

unit's warehouse, on clean shelves, in columns. The room is clean, dry and protected from the activity of insects or rodents (fig. 7).

Avoid exposing the butter to direct sunlight, so as not to oxidize and contact with the air so that some of the vitamin A. is not lost.

Because these products are hygroscopic, they provide a good ventilation of the space, the temperature of about 15°C and the relative humidity of the air of 60- 75%.

The oil sold in the grocery store is packaged in 1 liter containers, stored on shelves. Margarine and butter in the store are stored in refrigerated windows at 0-4°C.

Both in the restaurant and in the store the preserves are stored in a clean, dry, ventilated room which ensures a temperature between 4-20°C and an air humidity of maximum 75%, a higher humidity can cause rust. Cans are placed on clean shelves, without dust and traces of rodents or insects, being stacked on columns (fig. 8).

S.C. grocery store "Elena Carol" SRL ("La Doi Pași") sells rice, sugar and flour in bags of one kilogram. These are stored in the



Fig. 7 Shelf with rice bags and vinegar bottles in the S.C. grocery store "Elena Carol" SRL



Fig. 8 Cans placed on the shelf in the S.C. grocery store "Elena Carol" SRL

In both units, alcoholic and non-alcoholic beverages are kept in the unit's warehouse, neatly placed on shelves with a height of 1.8 m, clean and free of dust. During the summer, beverages are kept in the refrigerator at 0-4°C in the summer to keep them cool (fig. 9).



Fig. 9 Refrigerator with alcoholic and non-alcoholic drinks in the grocery store "Elena Carol"

The sugary products (chocolate, candy, toffee, jellies, wafers) and confectionery (corns, coriander, Easter) are displayed in the store on clean and dust-free shelves, away from the action of pests (insects and rodents) at a temperature of 10- 25°C and an air humidity of up to 75% (fig. 10-11).



Fig. 10 Shelf with cakes, biscuits and wafers in the grocery store S.C. "Elena Carol" SRL ("Two Steps") (own source)



Fig. 11 Shelf with chocolate bars and boxes sold in the S.C. grocery store "Elena Carol" SRL ("La doi Pasi")

Direct sun action can cause chocolate bars to melt, change the texture of candy and can cause irreversible damage and unpleasant appearance.

This category of products is not charged in the Restaurant-Pension Iriss unit because fresh cakes are prepared in the restaurant's kitchen.

## CONCLUSION

In both units, food is stored according to the degree of perishability.

For refrigerated products, refrigerators are provided in which a temperature of 3-4°C is maintained.

The temperature in the refrigerators is checked daily, and the result of the reading is recorded in a table.

Hard-perishable products are stored packed, stacked on the shelves of the warehouse intended for this purpose only.

In order to avoid degradation of the hygroscopic products, ventilation of the storage space is ensured.

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