

LABORATORY NO. 10.**MILK AND MILK PRODUCTS (NORMAL HYGIENE STANDARDS)****10.1. ORGANOLEPTIC PROPERTIES****10.1.1. MILK**

It is an opaque, homogenous liquid, of fluid consistence, and has a white-yellow-colour, sweet pleasant taste and specific smell.

Milk with nonhomogenous aspect, suspended or deposited impurities, and rised fluidity through water dilution or removed cream, or both of them, with the mucous or pus presence, with another colour than white-yellowish, such as red colour (in case of blood presence), pink colour (in case of microbial cultures presence) or blue colour when the milk is diluted by water is unfit for consumption.

Milk with strange smell and taste is forbidden to drink.

10.1.2. POWDER MILK

The powder milk is a fine, homogenous powder, with a hummidity of 4-6%, of white or white-yellow colour, with sweet taste and specific pleasant smell.

Powder milk is unfit for consumption if it has stabile agglomerations, or burned particles, or impurities and molds, or has strange taste and smell.

10.1.3. SOURED AND FERMENTED MILK

They have an homogenous aspect, specific for the type: porcelain aspect for yoghurt and creamy aspect for soured milk.

The colour is white or white-yellow, uniform, with acid smell and taste.

Soured products are unfit for human consumption in the following cases:

- if they have impurities and molds;
- gas bubbles;
- whey (for yoghurt is admitted up to 5% of quantity of the product);
- preservatives, and neutralizing acidity, substances strange without sanitary approval.

10.1.4. CHEESE

Recently cut, cheese has, on fresh section, an homogenous and granular aspect, fermentation depending on the type of cheese, white or white-yellowish colour, uniformly, pleasant taste and smell, specifically flavoured.

Apart from usual, cheeses produced through fermentation with mold stems, may have visible molds, and modified colour and smell.

On cheeses which have a crust on the surface, this will be compact, without crust fissures.

Edible colors can be used to color the paraffin layer that protects the cheese.

The following cheese is not fit for consumption:

- with bubble signs;
- with mold areas;
- in dissolution state, rancid or bitter;
- with strange fat addition by preservatives, colouring substances.

10.2. ESTABLISHING PHYSICAL PROPERTIES

10.2.1. MILK DENSITY ESTABLISHING

It is established when milk is collected from producers. Its value can indicate two frauds:

- water dilution (when the density is diminished);
- cream is removed (when the density is risen).

A double fraud establishes a normal density and we establish the fat in the milk.

10.2.2. MILK ACIDITY ESTABLISHING

Milk acidity can be neutralised with NaOH in presence of phenolphthaleine as indicator. Acidity is expressed in $^{\circ}\text{Th}$ (degree Thörner).

NORMAL VALUE:

- milk for consumption: 15-21 $^{\circ}\text{Th}$;
- powder milk: 14-21 $^{\circ}\text{Th}$;
- yoghurt: 75-140 $^{\circ}\text{Th}$;
- soured and fermented milk: 120 $^{\circ}\text{Th}$;
- cheese without fats: 210 $^{\circ}\text{Th}$;
- skimmed cheese: 200 $^{\circ}\text{Th}$;
- fat cheese: 190 $^{\circ}\text{Th}$;

10.2.3. RAPID DETERMINATION OF MILK FRESHNESS

10.2.3.1. BOILING METHOD

Fresh milk doesn't precipitate after boiling, while altered milk precipitates after boiling.

10.2.3.2. ALCOHOL TESTING METHOD

Equal quantities of milk and concentrated alcohol show the freshness of the milk.

If the mixture precipitates we have an altered milk.

If it doesn't precipitate we have fresh milk.

10.2.4. ESTABLISHING FATS

After destroying the proteins with concentrated H_2SO_4 , we can separate the fats with isoamyl alcohol and centrifugation. The usable apparatus for milk is butyrometer named Gerber.

NORMAL VALUES:

- Normal milk: 3.6%;
- Normal milk: 1.8 - 2% (partially skimmed);
- Skimmed milk: 0%.

10.2.5. MILK PASTEURIZATION CONTROL

There are three types of pasteurization:

- very high pasteurization > 100 $^{\circ}\text{C}$ - UHT;
- high pasteurization - 80 $^{\circ}\text{C}$ - destroys peroxidases from milk;
- middle pasteurization - 70 $^{\circ}\text{C}$ - destroys phosphatase from milk;
- low pasteurization - 63 $^{\circ}\text{C}$ - destroys aldehydase from milk.

Milk peroxidases decompose H_2O_2 into H_2O and O^{\cdot} .

Atomic oxygen oxidizes benzidine and modifies its colour. When a blue colour appears between milk and benzidine the milk is not pasteurized.

10.2.6. IDENTIFYING MILK ADULTERATION

The substances which are used for milk adulteration identification are:

- formol ($\text{CHCl}_3 + \text{FeCl}_3 \rightarrow$ blue colour, in presence of the HCl);
- peroxide ($\text{H}_2\text{O}_2 +$ chromic acid \rightarrow blue colour, in presence of the H_2SO_4);
- salicylic acid (salicylic acid + $\text{FeCl}_3 \rightarrow$ violet colour, in presence of the acetic acid);
- sodium bicarbonate ($\text{NaHCO}_3 +$ Alizarol and Rosolic acid \rightarrow violet - blue colour in presence of the acetic acid), and through simple boiling results brown colour of the milk.

10.2.7. BACTERIOLOGICAL EXAMINATION

The total number of the mesophyle germs/ml of fresh milk - 300.000;

The total number of the mesophyle germs/ml of powder milk - 100.000;

Supposed number of coliforms/g of the fresh cheese - 1000;

Number of molds/g of fermented cheese - 2000.

LABORATORY NO. 12.**EGGS. HYGIENIC NORMS****12.1. GENERALITIES****12.1.1. EGGS**

The word "egg", without any other denomination, refers to the hen's egg. For eggs resulting from other species (duck, goose, turkey hen) the kind of egg must be mentioned.

The eggs for consumption are compulsorily examined with the help of the candler.

The eggs are transported and sold in packages (poker-work cardboards), clean and separately according with the species origin.

Duck eggs, goose eggs are sold marked and compulsory accompanied by nutrition using instructions: boiling time minimum 10 minutes; being forbidden to eat these eggs in public and collective alimentary units.

In the alimentary units, before processing, eggs are washed with sodium hypochlorite water or water with detergents, disinfected through chloramine 1% immersion for a period of 10 minutes, and they are rinsed out with cold water.

Commercial value of the eggs depends on the weight (over 50 grams - for very big eggs; between 40 and 50 grams for middle eggs; under 40 grams for small eggs) and depending on the degree of freshness (very fresh, dietetics, maximum 5 days old; fresh, up to 15 days old; and tinned eggs).

12.1.2. EGG PRODUCTS

The mixture and egg powder can be produced from mixed yolks and whites of egg, or separately from yolks and from whites of egg.

There are prepared only from fresh hen eggs which are brought from hen farms, and which should not have diseases that could be transmitted to humans.

They are sold only in special sealed packages.

They can be used for thermic food preparing.

12.2. ORGANOLEPTIC PROPERTIES**12.2.1. EGGS****12.2.1.1. FOR UNIMPAIRED EGGS**

- **ESTIMATING THE PROPERTIES OF THE EGG SHELL**

The shell of edible eggs must be integer, without cracks and must also be clean, dry, matt, rugged, without stains, with colour specific to the species.

Eggs that are tainted, that have shiny, greasy spotted shell, are not edible.

- **CANDLING (MIRAGE)**

This method permits the visualisation of the entirely uncrushed egg's content, the egg has been crossed by a light fascicle.

Fresh egg is translucent. The yolk has a central positioning, fixed or with little mobility, separated, and it has a pink colour, which is darker than the colour of the white of the egg. The germinative disk must be small. The white of the egg is translucent, white-pink, around of the yolk. The part that contains air inside the egg,

is situated on its rounded pole, and has to be fix, well marked and its height has to be not more than 5 mm for very fresh eggs, and not more than 1/5 of the egg's volume for the tinned eggs.

Old eggs are unfit for consumption if they have:

- low translucidity degree (opaque aspect when combining white and yolk;
- mobile part that contains air without visible outline that measures over 1/5 of the total egg volume;
- mobile yolk, in some cases stuck to the shell;
- dark stains found more often in the interior part of the shell that exist because of the mould, dregs and bacteria.

12.2.1.2. EGG AFTER CRUSHING

The yolk has yellow to red globular hemispheric form, and is situated in the central part of the egg separately from the white.

The germinative disk is small. The white is small and has dense, gelatinous, translucent form, and has a small white-bluish surface with pleasant specific smell.

Old eggs that have characteristics as the following are no longer edible:

- olive, dwindled, widened yolk;
- yellow-greenish or grey fluid white (widely spread inside the egg);
- rotted, rancid or any other strange smell similar to hydrogen sulphide (H_2S).

12.2.2. EGG MIXTURE

It has orange smooth surface with a small elevation in the middle and firm content that has no strange smell.

After defreezing it becomes a homogenous yellow for yolk and white-greenish for white, liquid without strange smell. Only frozen egg mixture selling is accepted.

12.2.3. EGG POWDER (MAXIMUM 5% HUMIDITY)

It is a homogenous yellow powder with specific smell and taste.

Human consumption is impossible if the egg powder has: stable agglomerations; strange particles, molds; added preservatives, colouring substances, or other strange substances.

12.3. PHYSICAL STANDARDS

12.3.1. ESTIMATION OF RELATIVE DENSITY OF THE EGG

It is done through egg immersion into water or sodium chloride salty solution (6%).

Then notice the following observations:

- After sinking into water, the angle of the longitudinal egg axis formed on the bottom of the water recipient has the following measures: 0° - one day old egg; 30° - 4 days old egg; 45° - 8 days old egg; 60° - 15 days old egg; 75° - 21 days old egg; 90° - 30 days old egg.
- After introduction into 6% sodium chloride salty solution: a fresh egg must not float on the surface.