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SANITATION AND HYGIENE INDICATORS IN DISINFECTION OF DAIRY MILKING EQUIPMENT

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The question of improving the sanitary processing of dairy equipment with ozone- air mixture has been considered. The prospects of ozone technology for disinfection of processing equipment have been shown. It is established what treatment of dairy milking equipment by ozone-air mixture in concentration 10 mg/l decrease of number of mesophillic acrobic bacteria similar to use of 0,25 % solution of dezmol. Incre-asing the level of mixture to 15–20 mg/l a significant decrease of number of bacteria.

Keywords*: ozone, dairy milking equipment, ozone-air mixture, milkline, health indicators, washing, disinfection.*

In recent years, production of quality and safe raw milk as a product for public and the food industry remains unsolved problem in our country.

The use milking machines and milklines, transportation, processing and storage of milk has increased contact surfaces with which milk is on its way from the udder to its going from the farm. Also, as a rule, all surfaces which contact the milk during transportation and primary processing are locked and inaccessible to open cleaning and disinfection. During milking on the surface the lipid –protein contamination of milk fat is formed, which serves as an excellent medium for microbial growth. In we do not effectively remove contaminants and disinfection that are in milkline, the number of microorganisms increases several thousand times, most of these bacteria gets into the next batch of milk, significantly degrading indicer of its sanitary quality [1, 2, 3].

Purpose. Determine the possibility of improving sanitation indicators of dairy milking equ-ipment at its disinfection with ozone-air mixture after washing.

Materials and methods of research. Taking of the washings were carried out before the next milking with sterile cotton, tampon of object, washing every time in vitro with flush fluid.

Each experiments was performed in three repetitions. The date obtained were compared with rules according to the "Sanitary rules for the care of milking machines and dairy dishes, monitor their health status", 1986. Data of bacterial seeding equipment after drug treatment "Dezmol" were taken as a control.

Study of ozone-air mixture effect on the state of microbial contamination of milk and milking equipment in households was made using industrial design of ozonegenerator "Source 2 agro-M".

Installing the ozone concentration in the gas mixture was carried out by meter "Boson-BPG" under instructions guide.

Milkline processing was carried out in four phases with the configuration of ozonator for these concentrations.

At the end of each experiment after the last treatment of the inner surface of milkline the washings were taken with sterile cotton tampon and bacterial contamination was determined. The content of residual microorganisms by the results are in the table.

The content of residual microorganisms, content of mesophillic aerobic bacterial in the washings, n = 3 thousand CFU / sm^2

0,25 % solution dezmolu	Ozone-air mixture, mg / l			
K-1	D-2	D-3	D-4	D-5
-	5,0	10,0	15,0	20,0

24,28 ± 3,27	112,32 ± 10,21**	21,92 ± 3,45	10,27 ± 1,57*	0,86 ± 0,32**

* P≤0,05. ** P≤0,01 compared with control.

The table shows that after treatment of milkline with 0,25 % solution of the drug "Dezmol" the number of mesophillic aerobic bacterial in the washings was equal to 24,28 ± 3,27 thousand CFU/sm^2, what according to "Sanitary rules for the care of milking machines and dairy utensils, control their health status "conformed to the upper of the sanitary norms (25,0 thousand CFU/sm^2).

Index of 112,32 ± 10,21 thousand. CFU/sm^2 that was obtained after processing of milkline with ozone-air mixture with ozone concentration of 5 mg/l does not confort with sanitary standards norms. By handling milkline ozone-air mixture with ozone concentration 10,0 mg/l content of me-sophillic aerobic bacteria was equal to 21,92 ± 3,45 thousand CFU/sm^2, that almost coincided with the control rate and met established standards. More effective was the treatment of ozone-air mix-ture equipment with ozone concentration 15,0 and 20,0 mg/l – the content of mesophillic aerobic bacterial was equal to 10,27 ± 1,58 and 0,86 ± 0,32 thousand CFU/sm^2, respectively, which was significantly less than control rate (p≤0,05 and p≤0,01) and answered "Sanitary rules for the care of milking machines and dairy dishes, monitor their health status."

Conclusions. Studies indicate the efficient of processing of milk ozone-air mixture with ozone concentration 15–20 mg/l. Milkline processing with ozone-air mixture does not have a nega-tive impact on the environment.

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