

THE USE OF RETROSPECTIVE ANALYSIS OF MICROBIAL POULTRY PRODUCTS CONTAMINATION AND DETECTION OF VIABLE NON-CULTURABLE BACTERIAL CONTAMINANTS FOR FOOD INFECTION COMBATING

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Abstract

Requirements for topical issues of microbiological safety and the effectiveness of sanitary control of food products are being improved on the basis of new scientific and industrial information. The aim of the work was to obtain information for 5 years (2015 - 2019) on the frequency, seasonality and level of microbial contamination of industrial poultry products, as well as on viable but non-culturable bacteria (VBNC) in commercial poultry products.

For an analysis of poultry products, we used data for 4,899 samples from the "Vesta" automated laboratory bacteriological research system. The criteria for the assessment were the above-standard indicators of the total number of mesophilic, aerobic and facultative anaerobic microorganisms (MAFAnM), *Salmonella* spp., *Listeria* spp., and other microorganisms. Tested samples were placed on appropriate nutrient agars for CFU/mL determination. Viable cells were determined using Live/Dead® kit, while for statistical analysis was used with criteria ($X \pm m$), and the limit of fluctuation, $p < 0.05$.

An annual (in June-August) high MAFAnM content was established with statistically equivalent data of the contamination. Analysis of the contamination frequency showed fluctuations in annual values for MAFAnM are 66 - 100%, and *Salmonella* spp. 33.3 - 83.3% respectively. The contamination frequency for *Listeria* spp. remained statistically equal (from 41.6 to 59%) and *Listeria* spp. infection values by years were also equal. In some years the infection values were higher, for example, for MAFAnM in 2019, for *Listeria* spp. and *Salmonella* spp. in 2017. Excess infection of poultry products was detected for MAFAnM from April to September, maximum in July, and for *Listeria* spp. from February to December. *Salmonella* spp. infection was not observed only in January but most detected in July. The "purest" poultry products were in January (97.5% of samples) and February (91.9%) annually VBNC (99.99%) were detected in commercial minced chicken that corresponded to microbiological standards. Unlike vegetative cells, they did not multiply after 5 hours of storage. During contamination monitoring VBNC not counted.

Thus, mass contamination of poultry products was noted in particular months, in which it is necessary to strengthen preventive measures. It is advisable to identify dangerous VBNC bacteria in food.

Key words: Chicken mince, Contamination, Bacteria, Monitoring, VBNC.