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INSTITUTE OF MEAT HYGIENE AND TECHNOLOGY – BELGRADE

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I-15

ISPITIVANJE MIKROBIOLOŠKOG STATUSA ZAMRZNUTOG PILEĆEG MESA

Stojanović Branislav[1*], Anđelković Radivoje[1], Jovanović Zoran[1], Jovanović Nenad[1], Zarić Slavica[1], Baltić Ž. Milan[2]

U Srbiji se godišnje proizvede 490.000 tona mesa, što je za 250.000 tona manje nego pre deceniju i po. Srbija u evropskoj proizvodnji mesa učestvuje sa oko 1% inalazisena 19. mestu (FAO, 2009). Potrošnja mesa je upoređenju sa zemljama Evropske unije (EU) mala. U ovom periodu i potrošnja po jednom stanovniku je opala sa 65 na oko 36 kg, što je upola manje nego u EU, gde je prosečna potrošnja mesa 86,7 kg po stanovniku i po potrošnji mesa samo je Albanija iza naše zemlje. **Sve** to se odražava i na zdravstveno stanje i životni vek stanovnika.

S druge strane, proizvodnja pilećeg mesa u svetu beleži stalni porast. Proizvodnja živinskog mesa u svetu ove godine trebalo bi da dostigne rekordnih 85 miliona tona (u 2015. godini očekuje se 100 miliona, a 2030. čak 143 miliona tona, što će činiti 40 odsto svetske proizvodnje mesa), dok će u izvozu biti devet miliona tona. U proizvodnji i trgovini najdalje je otišao Brazil, gde je proizvodnja više nego udvostručena: porasla je sa 4,2 na 9,6 miliona tona, dok će ovogodišnja proizvodnja biti veća od 10 miliona tona.

Danas, živinarska proizvodnja obezbeđuje potrebe u proteinima životinjskog porekla za oko 30% stanovništva, a živinsko meso se ubraja među namirnice životinjskog porekla koje su najdostupnije najširim slojevima potrošača.

Potrošnja živinskog mesa u Srbiji, danas iznosi oko 16 kilograma po stanovniku, što je znatno niže od evropskog proseka, ali značajno više u odnosu na devedesetih godina, kada je iznosila oko 5 kilograma.

S druge strane, meso i proizvodi od živinskog mesa su značajni faktori oboljenja izazvanih hranom. U slučajevima masovnih oboljenja izazvanih hranom, po navodima nekih autora, ovi proizvodi učestvuju sa čak 33%.Smatra se da su uglavnom salmonele (*S. typhimurium, S. enteritidis*), uzročnici bakterijskog trovanja živinskim mesom, ali to može da bude i *Campylobacterjejuni/coli*. *Listerijamonocitogenes*, svrstava se u uzročnike alimentarnihtoksikoinfekcija

Pileće meso se za ishranu pripadnika MO i VS koristi u proseku od 20 do 25% od ukupne potrošnje mesa.Snabdevanje jedinica i ustanova MO i VS pilećim mesom, vrši se na osnovu ugovora između MO i dobavljača, a u skladu sa Zakonom o javnim nabavkama, Pravilnikom o kvalitetu mesa pernate živine („Sl. list SFRJ“, broj 1/81 i 51/88) i tehničkom specifikacijom.

Cilj našeg ispitivanja bio je da se utvrdi mikrobiološka ispravnost pilećeg mesa, zamrznutog („ekstra A klase“, konfekcionirano – „file“, konfekcionirano – „batak i karabatak“), proizvedenog za potrebe Ministarstva odbrane i Vojske Srbije.

Uzorci su uzimani u skladištu proizvođača, u proseku dva puta mesečno. U periodu od 2009. do 2010. godine ukupno je analizirano 206 uzoraka pilećeg mesa. Za mikrobiološko ispitivanje korišćene su propisane metode i hranljive podloge iz

Pravilnika o metodama vršenja mikrobioloških analiza i superanaliza životnih namirnica („Sl. List SFRJ“, broj 25/80), a bakteriološka ispravnost tumačena je prema Pravilniku o mikrobiološkoj ispravnosti namirnica u prometu („Sl. List SRJ“, broj 26/93, 53/95 i 46/02).

U prvoj godini, analizom mikrobiloškog statusa, utvrdili smo da od 85 ispitanih uzoraka, 58 (68,24%) bilo je negativno na prisustvo bakterija, dok je u 27 (31,76%) uzoraka utvrđeno njihovo prisustvo. U drugoj godini je ispitan 121 uzorak, 88 (72,73%) uzorakabilo je negativno na prisustvo bakterija, a broj pozitivnih uzoraka je iznosio 33 (27,27%).Svi pozitivni uzorcu su proglašeni kao zdravstveno nebezbedni za ishranu i stavljeni proizvođačima na raspolaganje.

Prisustvo bakterija ukazuje da je pileće meso bilo kontaminirano sadržajem poreklom iz digestivnog trakta, ili sekundarnom kontaminacijom, a kao posledica smanjenognivoa održavanja procesne higijene**,** kao i nepoštovanje principa dobre higijenske prakse i dobre proizvođačke prakse, koji su preduslov za proizvodnju zdravstveno bezbedne hrane.

Ključne reči: pileće meso, analize, mikrobiološki status

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EXAMINATION OF THE MICROBIOLOGICAL STATUS OF FROZEN CHICKEN MEAT

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Annual production of meat in Serbia is 490.000 tons, which is by 250.000 tons less than fifteen years ago. Serbia accounts for approx. 1% of meat production in European Union, and it is on the 19thplace (FAO, 2009). Meat consumption, compared to other countries of European Union (EU) is low. In this period, also consumption per capita decreased from 65 to approx. 36 kg, which is by half less than in EU where average consumption of meat is 86.7 kg per capita, and in regard to meat consumption, only Albania is behind our country. This reflects on health condition and life expectency of population.

On the other hand, production of poultry in the World is constantly increasing. Production of poultry in the world this year should reach the record of 85 million tons (in 2015 annual production of 100 million tons is expected, and in 2030 even 143 million tons, which will account for 40% of world meat production), whereas nine million tons will be exported. In production and trade, Brazil has gone the furhtest, the production has been doubled: it has increased from 4.2 to 9.6 million tons, and production this year will be ober 10 million tons.

Today, poultry production provides and satisfies requirements for animal proteins for about 30% of population, and poultry meat is considered as food of animal origin mostly available/accessible to grassroot consumers.

Consumption of poultry meat in Serbia, today, is approx. 16 kilograms per capita, which is significantly lower than European average, but significantly higher compared to the nineties, when it was only 5 kilograms.

On the other hand, poultry meat and poultry meat products are significant factors in food borne diseases. In cases of mass disease caused by food, according to some authors, these products account for 33%. It is considered that mainly salmonella strains (*S.typhimurium, S.enteritidis*) are causers of bacterial poisoning by poultry meat, but it can also be *Campylobacterjejuni/coli*. *Listeria monocitogenes* is also considered to be cause of alimentary toxic infections.

Poultry is used in nutrition of members of the Ministry of Defense and Serbian Army in average of 20 to 25% of total meat consumption. Supply of units and institutions of the Ministry of Defense and Serbian Army is done based on contracts between the Ministry of Defense and supplier, according to the Law on Public Procurement, Regulation/Rulebook on quality of poultry meat („Official Journal of SFRY", number 1/81 and 51/88) and technical specification.

Aim of this objective of our research was to determine the microbiological safety of frozen chicken meat, („extra A class", cut/confectioned– „fillet", cut/confectioned– „thigh and drumstick"), produced for the needs of the Ministry of Defense and Serbian Army.

Samples were taken in the producers' warehouse, in average twice per month. In the period from 2009to 2010, total of 206 samples were analyzed. For microbiological testing regulated methods and nutritive mediums were used according to the Regulation/Rulebook on methods for microbiological analyses and super analyses of animal foodstuffs („Official Journal SFRY", number 25/80), andbacteriological safety was interpreted according to Regulation/Rulebook on microbiological safety of foodstuffs in trade („Official journal of SRY", number 26/93, 53/95 and 46/02).

In the first year, by analysis of microbiological status, we established that out of 85 tested samples, 58 samples (68.24%) were negative on presence of bacteria, whereas in 27 samples (31.76%) the presence of bacteria was detected. In the second year, total of 121 samples were tested, 88 samples (72.73%) were negative for presence of bacteria, and number of positive samples was 33 (27.27%). All positive samples were declared unfit for consumption and were returned to producers.

Presence of bacteria indicated that chicken meat was contaminated by contaminants originating from the digestive tract, or by secondary contamination, as consequence of lower level of process hygiene, as well as violation of principles of good hygiene practice and good manufacturing practice, as pre-conditions for production of healthy and safe food.

Key words: chicken meat, analyses, microbiological status.

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