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## IMPACT OF TECHNOLOGICAL PROCEDURES SAFETY OF MEAT PRODUCTS PRODUCED IN INDUSTRIAL CONDITIONS

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### ABSTRACT

Production of wholesome, high quality and safe meat products primarily depends on technological operations during production, legislative regulation and control the production of meat products in all segments of the manufacturing process.

During the manufacturing process should be taken for the proper conduct of all technological operations from farm to table. Not for technologists working in local industries can affect the proper functioning of the technological operations of unloading of animals in cattle depot and can not before animal nutrition, breeding method, procedure for loading animals into a truck through the presented issues in the paper shows the impact of negative factors that affect the safety of meat and meat products required on who may indirectly or directly affect technologist.

One of the important factors that affect the quality and safety of meat products is the correct processing of meat especially when using salt for brining.

During brining meat appear nitrosamines / substances with high carcinogenic potential, and during smoking create benzo pyrene are also carcinogenic substances.

Keywords: meat products, residues, pesticides

### INTRODUCTION

The production of meat products is through technological operations that are related to one another in order to get safe and quality product to consumers. In developed Western countries consumers and their organizations have a major impact on the provision of quality and wholesome products meat from farm to fork. Reason for the active role of associations' consumers in these countries is the emergence of several scandals in certain EU countries / outbreak of mad cows, contamination with dioxin in Belgium, an outbreak of avian influenza in China. Inspection services of these countries through the

introduction of new legislation making efforts to recover trust of consumers. Lately, efforts have been made in the development of technological processes in the production of meat and introducing control of finished products that will achieve acceptable safety standards in food safety. Emphasis is placed on control and pesticide residues, drugs, toxic elements, water pollution. Contamination of meat and meat products continued during the slaughter of animals and processing of meat

In recent years international standards for food safety system requiring self-control at all stages of the technological process of the food producer. The industry producing meat this system of self-control is most notably in order to get a quality and safe product. The aim of this work was to the shortest lines are routed impact of technological procedures starting from slaughtering, meat canning of low temperatures, salting and brining, smoking and thermal processing of meat products, the safety of meat products.

## SLAUGHTER OF ANIMALS

It begins with surgery stunning and bleeding of animals and followed other operations dependence the type of animal skin as downloading, and downloading hair hand, removing the internal organs, cutting the body into two equal halves. After slaughtering and primary processing pig or bovine wash, scales and carry cooling. Since the first operation in the slaughter until the end of manipulating meat contamination is present. Stunning of animals should be done professionally and properly. Stunned of the animals should be raised on a high pole and then immediately have to bleed by cutting the large vessels. If properly and timely perform these two operations the possibility of contamination of the meat in these phases is minimal. Contamination of meat with microorganisms is higher in the stages of yelling or downloading hair in pigs, bovine or removal of internal organs of the pigs. Veterinary sanitary service prescribed norms and standards for slaughterhouses that can be constructed, equipped and operated. Regulations should be broad enough and resilient and cost-effective health

It begins with surgery stunning and bleeding of animals and followed other operations depending on the type of animal / downloading skin downloading hairs and downloading fibers, removing the internal organs, cutting the body into two equal halves /. After slaughtering and primary processing pig or bovine halves are washed, weighed and taken to the cooling chambers. Starting from the first operation Slaughter until the end of the manipulation of meat contamination is present. Stunning of the animals should be done professionally and properly. Stunning of the animals should be raised on a high pole and

then immediately to bleed by cutting the major blood vessels. If properly and timely perform these two operations the possibility of contamination of the meat in these two phases is minimal. Contamination of meat with microorganisms is higher in stage yelling or downloading hair in pigs, removing the internal organs bovine or porcine.

Veterinary sanitary service prescribed standards and norms, by which slaughterhouses can be constructed, equipped, reconstruct and operate. Regulations should be sufficiently broad and flexible, while health and economically justified.

## PRESERVATION OF MEAT WITH LOW TEMPERATURES

Conservation at low temperatures is based on the slowdown of biochemical reactions with low temperatures significantly affect the development of microorganisms. Many types of microorganisms are inhibited at temperatures around 0 C, but there are organisms that can grow and beneath this value. Lower temperatures from 0C favorably affect the development of microorganisms. The cool meat/-1 to 7C / can not develop thermopiles and a number of meets phallic bacteria. This is especially true for pathogenic species. The 10 C ceases to proliferate clostridia and entero- toxic strains of staphylococcus and salmonella below 7C.

The freezing occurs inhibition and partial destruction of microorganisms. Death of microorganisms during freezing is a function of time and temperature value. Important role in reducing the number of microorganisms play speed to freeze the meat. Yeasts are more resistant to freezing of germs and bacteria between low temperatures submit gram positive species. Pathogenic bacteria do not lose their vitality with freezing.

## SALTING AND CURING OF MEAT

Cooking salt and nitrites affect the growth of microorganisms in meat and meat products to inhibit the pathogenic species and sustainability of meat products. Nitrites in very low concentrations inhibit the growth and development of *klostridium*, *botulinum* and other species. Nitrite in meat products are added in amounts of 80 to 150 ppm.

Due to the interaction of these factors with nitro are getting strong effects against pathogenic microorganisms. Salt for cooking and nitrite affect the health of consumers. The increased concentration of sodium in the blood is a major cause of high blood pressure. It is estimated that the amount of 20 to 30 percent comes from meat products.

Heavy metals, especially lead and arsenic may be present in polifosfates and considered that the total amount of lead that enters the human food about 10 percent comes from products meet. Data from the World Health Organization tolerant dose of lead is 3 mg per week.

Nitroso amines are products arising from nitrites and secondary amines. Ascorbic acid, isoascorbic acid, and reduce nitrite to nitrogen monoxide which is a very weak nitrosyl agent and thus perform carcinogenic inhibiting substances.

## GAMMON OF THE MEAT

Gammon as preservative material used in the production of meat products. It affects the aroma, color, and dimension products. Gammon inhibits the breakdown of fat and inhibitory effect on microorganisms. Of all the components of smoke affect antimicrobial organic acids such as formic, acetic benzoic then formaldehyde, phenols. The gammon and are polycyclic hydrocarbons aromatizing which are harmful because they are located between compounds with carcinogenic effects and best known of which is benzo-a-pyrene. To obstruct the creation of these harmful compounds in gammon can be achieved by controlling the temperature of pyrolysis the tree that should not be higher than 650 C and purification of smoke.

## TERMINAL PROCESSING

Under the influence of thermal processing meat changes color, aroma, consistency ability to bind water, nutritional and biological value. The color of the meat begins to change when 50% of vertebrate iron pigment in the meat heme myohemoglobin move in and completely changed when breaking down 70% from pigmentation iron. With the water boiling meat gets gray color with faint brown baking and frying fats in intensive brown. The high temperature heating of the color of meat affects Maillard reaction is more pronounced in pork. The heating of meat at temperatures above 80 C continues allocating two valence cations on the structure of proteins, and above 90 C starts to release sulfur hydrogen. At temperatures above 150 C starts creating heterocyclic amines aromatic. These are substances with high mutation and carcinogenic potential.

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