



International 58th Meat Industry Conference “Meat Safety and Quality: Where it goes?”

New trends towards more effective food safety control

Iva Steinhäuserová^{a,b,*}, Gabriela Borilová^{a,b}

^aDepartment of Meat Hygiene and Technology, Faculty of Veterinary Hygiene and Technology, University of Veterinary and Pharmaceutical Sciences Brno, Palackého tr. 1/3, 612 42, Brno, Czech Republic

^bCEITEC — Central European Institute of Technology, University of Veterinary and Pharmaceutical Sciences Brno, Palackého tr. 1/3, 612 42 Brno, Czech Republic

Abstract

Sufficiency of safe and prime-quality food is one of the priorities of modern society. In meat production, an important measure to prevent zoonotic agents being transferred from animals to humans via meat is modern meat inspection. Systems for food safety assurance at the level of food producers include HACCP and GMP. One of the methods for validation and verification of GMP and HACCP systems is the implementation of process hygiene criteria at slaughterhouses. In case of the occurrence of foodborne disease, reliable and fast methods for detection of the causative agent are necessary.

© 2015 Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of scientific committee of The 58th International Meat Industry Conference (MeatCon2015)

Keywords: food safety; food control, trends, meat inspection

1. Introduction

Nowadays, food safety is a priority when producing food. Based on the current knowledge and diagnostic possibilities, food safety means the food does not contain pathogens or chemical contaminants in amounts which could induce an illness in a person. It means that food must conform to the conditions given by food legislation. In

* Corresponding author. Tel.: +420 541 562 740; fax: +420 541 321 230.
E-mail address: steinhauserovai@vfu.cz

contrast to food safety, quality of food is “harmless to health” (has no effect on health), although it also means the food meets the typical standards characteristic of a particular product.

1.1. Food and Food Safety

Sufficiency of safe and quality food is one of the priorities of the modern society. Food, together with drinking water and energy resources, belongs to the strategic materials ensuring stability and development of society. The contemporary trend is to eat fresh food with minimal amount of additives and as little processed as possible. However, this trend goes hand in hand with certain risks. It is necessary to realize that unprocessed food, as well as ingredients, are hardly ever sterile and usually contain microorganisms, the types and numbers of which in food are influenced by the quality of the raw material and the degree of its processing. Most microorganisms come from the natural microbiota of the food ingredients and from the microbiota inserted during the processing, storage and distribution. In most cases, food microbiota has only a limited influence over the quality of food, and its consumption does not cause any problems. However, there are some cases in which the presence of microorganisms can have a negative effect either on the consumer or on the food itself. The presence of microorganisms can result in the spoilage of food and can change its organoleptic properties but can also cause health problems in consumers. Economic losses caused by the damage of food are estimated to more than \$35 billion a year, according to Forbes magazine. The losses caused by the foodborne diseases are even higher. In 2005, 1.8 million deaths from diarrhoeal diseases were reported, largely attributable to contaminated food and drinking water¹. There are over 200 known microbial, chemical or physical agents that can cause foodborne illness when ingested. More than 75% of these agents are zoonotic². These agents cause zoonoses, diseases transmissible from animals to humans. The increasing importance of the foodborne diseases is emphasized by several aspects³. Among the most important ones are globalization, change of the age structure of the population, intensified production or on the other hand a free-range/organic animal production, climate change etc. (Table 1).

There are several systems in the food production to prevent risks for human health. Some of them are obligatory for the producers and some are optional, given more or less by the business requirements, and besides food safety, they also help to guarantee food quality.

Production of food safety starts in the primary production. If food becomes contaminated at this point, it is very difficult to eliminate this contamination in other production stages. For example, when animals during fattening are contaminated with *Salmonella* or *Campylobacter*, these do not induce any clinical symptoms of animal disease; however, during slaughtering, meat and organs can get contaminated thus becoming a risk for foodborne illness.

Table 1. A system approach to food safety (adopted by Havellar et al. 2010).

DRIVERS	SOURCES	PATHWAYS		OUTCOMES	
	Pathogens	Farms	Processing/Distribution	Preparation/Consumption	Public health
Globalization	Reduced geographical barriers to spread (of new variants)	Inadequate sanitation: higher pathogen loads Intensified contact structures	Long and complex supply chains Varying hygiene levels		Increased risk
Minimal processing	Adaptation		Less kill steps		Increased risk if not well controlled
Laboratory methods	Discovery of new pathogens or variants Omics approaches				Increased observed risk
Water, waste and energy		Irrigation water quality	Water/energy savings cleaning, process and		Increased risk

Download English Version:

<https://daneshyari.com/en/article/1266339>

Download Persian Version:

<https://daneshyari.com/article/1266339>

[Daneshyari.com](https://daneshyari.com)