

# Food safety assurance on tasting field

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## ABSTRACT:

Hygiene and technical requirements, which must be met by the tasters and people who organize tasting are clearly presented in this article. A hygiene-technical estimation of the actual situation in tasting is described. Two years of researching in the field of tasting brought the following results: tasting is not included in the regulations and guidelines; tasting are performed by the personnel, who are not suitably educated regarding food safety; enterprises, which organize tasting do not educate their tasters regarding food safety; there is no control over enterprises and their tasting performers. The presented results will be used as a basic for preparing of a model of correct tasting performance with consideration of hygiene, technical, technological, and health criteria. From the food safety point of view the field of tasting is not managed as it should be, therefore the health of people, who participate in tasting, is threatened.

## KEY WORDS:

Tasting, Education, Hygiene, HACCP system, Legislation

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## INTRODUCTION

The term “tasting” defines supply of food, which must be suitable for consumers, therefore food preparation must meet the minimal hygiene criteria, regardless of location of food preparation [1].

Two years of experience with tasting organization showed lot of deficiencies in surveillance of this field and hygiene-technical deficiencies in tasting performing. Nowadays everybody is allowed to perform tasting, regardless of previous knowledge. Tastings are organized by various companies, which do not enable additional training regarding food hygiene and good hygiene practice to tasting performers. Many of food producing companies decide, due to economic reasons, to perform training by themselves. Tastings are mostly thought as a commercial events, because first of all companies are interested in sale success during tastings. Hygienic food preparation and food offer are put in the rear and are not important to the customers of tasting performers [1]. For food safety assurance it is important to define, control and manage each and every link in the food/supply chain. There is a simple rule that food is and will be safe if each person included in the “from stable to table” food chain understands and performs its duties and tasks [2].

The basic hygiene-technical principles are regulated by law, which is harmonized with EU law.

On the one hand enormous increase in food chain volume in the past decades and on the other hand various trouble-causing and new micro-organisms caused the need of system, which is able to assure global food safety. This was reason for forming of HACCP system, which is based upon an effective internal control [3]. The system was originally developed as a system for microbial safety to provide safe food for space expeditions. In 1971 the system was presented at first American National Conference for Food Protection. In 1993 the HACCP system was included in the European food legislation [4,5] and from January 1<sup>st</sup>, 2006 the HACCP system is obligatory for all EU non-primary food operators [6,7]. In Slovenia the system is obligatory for all players in food production and trade from January 1<sup>st</sup>, 2003 onwards [8].

Food safety assurance must be discussed as a whole and requires active cooperation among all links of food/supply chain. The basic hygiene-technical principles are regulated by law, which is harmonized with EU law. Food safety is responsibility of food operators.

To assure safe food for consumers, pre-requisite programs and procedures must be based upon HACCP principles.

Tasting law is lax, so requirements are interpreted by each taster on his own way. For foods placed on the market general hygiene-technical requirements are defined, but tastings are not included in the term “foods on the market” directly. The following is required in preparing and execution of the tasting event, which is undoubtedly part of “foods on the market”:

- Educated and trained tasters;
- Suitable hygiene-technical place for execution of the tasting event;
- Suitable waste management;
- Following food hygiene principles and HACCP system.

## HYGIENE STANDARDS FOR EXECUTION OF THE TASTING EVENT

### Receiving foodstuffs

Tasters must check safety criteria and foodstuffs quality at receiving (e.g. date of durability, packaging integrity, and temperature). From January 1<sup>st</sup>, 2006 onwards introduction of HACCP system is obligatory for all included in food production and trade (during storage, transport and handling food is, with the exception of primary one, exposed to biological, chemical and physical hazards). Inappropriate food handling, mainly broken cold/warm chain, unconsidered dates of durability and un-separated high/low risk procedures/areas enable survival and multiplication of bacteria, even toxins formation. Inappropriate food handling can be the cause for food poisoning. To avoid the latter employees must follow food hygiene principles. Practices and procedures which ensure good hygiene practice must be based upon the following principles:

- Avoid or limit contamination (pollution) with undesirable microorganisms,
- Avoid or limit multiplication of undesirable microorganisms,
- Avoid the undesirable multiplication of microorganisms,
- Avoid the intolerable survival of microorganisms or their metabolites.

### Before starting the tasting

Tasters must be healthy and qualified for food handling.

### Health status of a taster

Taster with infected skin wounds, sore throat, diarrhea, increased body temperature and if he/she vomits, he/she is not allowed to handle food. Tasters must notify the food operator of his/her superior [7].

Harmful bacteria are transmitted in foodstuff from a sick person or from an infected person who is capable of transmitting bacteria, before he/she is taken ill. Such a transmission can be prevented by good hygiene practice, especially by proper hand hygiene. Large amounts of bacteria and virus, which cause food borne infections, are secreted in feces of sick persons and some of them in urine. Microbes are secreted in person's fluid droplets through the nose or through the mouth. Up to  $10^9$  of salmonella cells per gram of feces are secreted in feces of salmonella carriers in convalescent-stage [9]. Infected skin wounds are the source staphylococci and streptococci. Enterotoxic staphylococci are bacteria, which cause food borne intoxications. During favorable conditions in a foodstuff staphylococci are rapidly multiplied, some of the strains even form toxins [10].

### Personal hygiene for a taster

Food handlers must practice a high level of personal hygiene and must wear clean and suitable overalls [7]. Food handlers must keep fingernails short and must not wear nail polish. Hair must be covered or kept tied back if it's long. Food handlers must not wear jewelry or hand watches. Protective overalls must be worn. Before work hands must be

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washed properly to wash away dirt and existing microflora. Hand hygiene must be kept during work to avoid cross-contamination and by that contamination of foodstuffs. Hands must be washed after visiting the toilet or after every high-risk procedure. Proper hand washing removes the dirt and microorganisms from skin. The technique: wet your hands with warm water, apply soap and rub your hands together for at least 15 seconds [9].

Food handlers must not touch ready-to-eat foods with their bare hands, but must use clean utensils. In some cases (e.g. sausage cutting, high-risk foodstuffs...) as a preventative measure food handlers must use disposable gloves for performing individual tasks. When gloves get dirty or damaged ensure that they are changed, because microorganisms can penetrate through. Skin gets wet during work and permeability of gloves materials increases [9].

### Preparing the work place

When handling food the hygiene-technical requirements for food preparing, processing, finishing and selling areas must be met. To avoid cross-contamination of foodstuffs the sinks with cold and hot running and drinking water must be provided [7].

Utensils (e.g. tableware, cups, boards, plates), which are used during tastings must be stored on a clean work surface. Cups should be stored upside down on a clean serviette to avoid contamination of cups (e.g. by talking). When Spoons and forks are placed down, the handles should be lifted to reduce chances of cross-contamination. Scoops, ladles, whisks should be placed on a clean surface (e.g. a clean plate). The pallets and shelves with goods should be lifted off the ground.

### Assuring regimes for temperature

Microbiologically perishable foodstuffs need to be stored at temperatures, which do not assure the right conditions for harmful microorganisms growth or toxins formation, which are hazardous to health. As a rule cold/warm chain must not be broken, only short periods of decline in temperature are exceptions, when temperature is controlled due to special food handling during preparing, transport, storage, selling and serving. These periods must be as short as possible [7].

During tastings attention should be paid to foodstuffs, which requires handling at a certain temperature. Every time taster must supplement missing foodstuffs, because larger provisions would represent a potential hazard for microorganisms development (e.g. *Yersinia enterocolitica*, *Listeria monocytogenes*, some strains of *Clostridium botulinum* grow slowly at temperatures around 3°C) [9]. Because of people in the immediate vicinity food contamination must be prevented during tasting. Perishable foodstuffs must be handled at temperatures below 5°C [11].

Food heat treatment must assure microbiological safety of food and must preserve all food nutritional and natural goodness.

For food safety the core temperature must kill non-spore-forming harmful microorganisms (at least 74°C) [11]. To assure that a temperature

and time of heat treatment must be monitored. Re-heating of cooked food must be quick, to pass over temperature interval between 10 in 60°C as soon as possible. Re-heated food must be served at once and at temperature of at least 63°C. In such a manner food will be safe and will preserve its organoleptical properties [9].

Literature review and experiences showed tastings are not suitably controlled from the health point of view and is not suitably dealt with both in expert circles as in science circles. The latter was the reason for research, which aimed to determine current methods of tasting control and tasters' knowledge about basic hygiene principles and HACCP system.

## METHODS

A combination of quantitative and qualitative methodologies was used in the research. For the quantitative part of the research a questionnaire was prepared, which was composed of two parts. In the first part data about tasters' training and execution of tasting events were obtained. In the second part tasters' knowledge about good hygiene practice, cold/warm chain and knowledge about the current food hygiene legislation were checked.

The questionnaires were distributed among randomly selected tasters, who were present in the shopping centers IS-BTC in IS Vič during interviews. Tasters were divided in two groups: the first group was "pkk" group of tasters, who have the expert guidance and the second group was "ad hoc" group of tasters (mainly handling poultry products) with non-professional and non-expert approach – tasters were left to their own resources. They were interviewed during weekends, from May until early August 2005.

In the qualitative part we used a method of observing for evaluation of execution of tasting events and following the food hygiene principles during tastings.

## RESULTS

20 tasters from pkk company, which professionally organize tastings (the group A) and 20 tasters, which were hired by food producers (the "ad hoc" group) of various brands (mainly poultry products) (the group B) were interviewed.

### Analysis of execution of tasting events

We determined that tasters are not supervised, so taster can be anybody, who is hired by a company irrespective of as to whether the hygiene requirements are met. We did not find any records about official inspections. Tastings were also executed in areas, which did not meet the minimal hygiene-technical requirements. Requirements for temperatures of both hot and cold food holding were not met. During tastings and transport temperatures were not controlled. Food was transported mainly in personal cars, which are not equipped for food transport.

Tastings were also executed in areas, which did not meet the minimal hygiene-technical requirements.

People working in companies, which organize tasting events are not suitably educated about foodstuffs, which is reflected in tasters themselves. As a rule the minimal hygiene-technical conditions are not assured (e.g. suitable hand-washing sink).

Tableware and dishes intended for consumers are usually disposable. Waste is not separated (according to origin) and is disposed near tasting tables. We did not see any records regarding tasting management.

### Tasters' knowledge and qualification

Twenty tasters from the group A and twenty tasters from the group B were interviewed. Manly girls were employed as tasters; 18 of them in the group A and 11 girls in the group B. tasters were from 18 to 50 years old. The age of the majority of the tasters was between 18 and 25.

Table 1 shows that companies hire persons, who do not have any certificates of training. 16 tasters out of 20 hired by pkk company posses a training certificate, while in the group B only 7 persons out of 20 were trained. The majority of tasters are not familiar with legislative requirements for tastings, because they believe they should repeat the training every 5 years. Tasters hired by pkk company are educated regularly and are prior tasting event always informed about properties of products, which are tasted. The opposite was found out in the group B. they weed instructed regarding hygiene of foodstuffs manly during various courses, which were organized by competent institutions (e.g. The Institutes of Public Health); some of them gained knowledge during their schooling. Education was organized by employing company for none of the group. It was determined that the majority of tasters form the group B posses no suitable certificates (e.g. conformity for obligatory illness report, certificate of training regarding hygiene of foodstuffs) before starting to execute a tasting event. Only 15 tasters from the group A possessed all the certificates, required by the Rules on hygiene of foodstuffs<sup>1</sup> (which was repealed). Most of the tasters are not familiar with the significance of uninterrupted food cold chain, because they rather guessed than know the temperature assuring food safety. The proper temperature was stated by 11 tasters from the group A and 7 tasters from the group (Table 1).

For heat treatment of food heaters, cookers and ovens are used. For food safety it is important to keep food warm at temperatures above 63°C. It was determined that the majority of the tasters are not familiar

<sup>1</sup> Rules on hygiene of foodstuffs (Official Gazette of RS, No. 60/2002, 104/2003, 11/2004, 51/2004, 54/2007), Rules-repealing the Rules on hygiene of foodstuffs (Official Gazette of RS, No. 54/2007).

**Table 1.**

The results of interview, carried out in the both groups of tasters in 2005 [1].

Activities	The group A (n)	The group B (n)
Certificate of food hygiene training	16	7
Information regarding regular yearly training	11	4
Commercial and food hygiene knowledge	19	2
Presence of declaration of health status	15	2
Knowledge about the cold chain	11	7
Knowledge about the warm chain	12	5

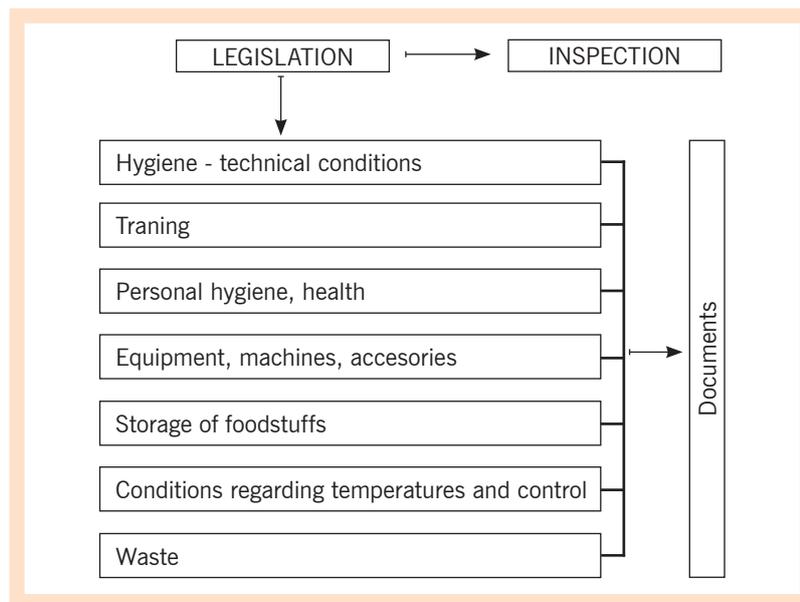
with the significance of unbroken warm food chain. 5 tasters from the group B and 12 tasters from the group A answered correctly.

## DISCUSSION

Tastings are currently considered only as commercial events, because only selling of promoted products is important. The only pointer of successful tasting is increased sale.

Tasting can be executed by anybody, because there are no legislative restrictions, although food handling is indubitable defined in Regulation on the hygiene of foodstuffs [7].

Specific minimal hygiene-technical requirements on tasting preparing and execution are stated in EU Regulation on the hygiene of foodstuffs [7] as the term “foods on the market”. Figure 1 shows basic topic, which are controlled by food business operators on the one hand and by competent inspections on the other hand.



**Figure 1.**

Minimal requirements for food safety during preparing and tasting.

It was determined that tastings are not sufficiently controlled by competent inspections or they are not controlled at all. Two years of experience with tasting organizing showed some of deficiencies and irregularities both in hygiene-technical and organizational aspects. One of the most frequent irregularities was that tasters are not suitable supervised, which leads to:

- Insufficient knowledge of promoted products (composition, properties, additives...),
- Usage of inappropriate utilities for tastings,
- Inefficient maintenance of warm/cold food chain,
- Inappropriate food and product handling from hygiene point of view,
- Inappropriate tasting waste management.

Educators of tasters can only be professional educated persons. It was determined that tasters are nor sufficiently informed about hygiene of foodstuffs and personal hygiene during food handling.

Preparing and execution of tasting is very complex and requires educated and trained tasters as well as suitable hygiene-technical conditions in places, where tastings are executed. Food handling, according to food type and considering cold/warm food chain are important. Cold/warm chain of perishable foodstuffs must not be broken during transport and in stores. Larger stocks of promoted perishable foodstuffs must be assured for each store. In order to assure safety rather than to transport foodstuffs in cars, which are not designed for food transport.

Required temperatures, both high and low ones, for promoted products must be kept. Therefore it is important that refrigerators are located near place, where tastings are executed. If heat treatment of foodstuffs is needed, tasters should check the temperature during heat treatment and should keep food warm. It was determined that temperatures are not measured, so there's a potential hazard for peoples' health.

Tasting waste must be stored in suitable and covered containers. Organic and other waste must be collected separately. Waste baskets must be emptied regularly and after work must be cleaned with water. Taster do not separate waste according to type and waste is collected in open carton baskets, located on the floor and by the tasting desks, which is in opposition to hygiene principles and legislative requirements [7]. Food operator is responsible for food safety assurance during production and trade. Hygiene programs and procedures, which are necessary for internal HACCP system execution in food business must be assured. A responsible person for internal control can be designated by a food operator. Such a person must be educated about food hygiene and HACCP system principles. Food operators must elaborate a yearly plan of training. Food handlers in production and trade must demonstrate the knowledge about hygiene of foodstuffs. Knowledge about hygiene of foodstuffs can be gained by technical education or by additional training regarding food handling [7].

Educators of tasters can only be professional educated persons. It was determined that tasters are nor sufficiently informed about hygiene of foodstuffs and personal hygiene during food handling.

## CONCLUSION

It was estimated that tastings are considered as "foods on the market" as well, so all legislative requirements regarding food safety must be met.

During tastings food preparing and trade are weaved, so collaboration of tasters and clients. A taster must meet all the legislative requirements regarding food safety, while clients must provide suitable place for tastings, meeting all the hygiene-technical requirements. Tasters can be persons with the knowledge about hygiene of foodstuffs and of promoted products. Nowadays consumers are of great pretension and are aware of nutrition and food additives. This is why a taster must know to answer all kinds of questions and dilemmas to consumers. By following the hygiene-technical principles taster can contribute to improve hygiene culture during tastings and can influence hygiene awareness of consumers.

Because tastings are constantly executed mainly in middle-sized or large shopping centers and because there are more and more tasting organizing companies, yearning for profit, the educational materials exclusively written for tasters should be prepared. The existing educational material about hygiene of foodstuffs is not adapted to mentioned topics. The knowledge, which tasters gain during food hygiene courses are not adjusted to specific topics of their work, since their work is completely different as work in a kitchen, where suitable running and drinking water is always available. The existing courses offer general knowledge regarding hygiene of foodstuffs and lot of tasters can not relate those topics to their work.

From the determined state of affairs it is concluded intensified severity of inspection is needed, which could stimulate a transparent demonstration of safe tasting processes. Tastings should by no means threaten health of consumers. Only a qualified taster, with all the technical support and the knowledge of food hygiene, can be an active partner in food/supply chain and trustworthy part of food safety assurance.

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