



## **TRUEFOOD**

### **Traditional United Europe Food**

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Thematic Priority: Food Quality and Safety (# 5)

#### **D3.1.2**

#### **Database on prevalence and concentration of pathogens on TFP products**

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<b>Dissemination Level</b>		
<b>PU</b>	Public	X
<b>PP</b>	Restricted to other programme participants (including the Commission Services)	
<b>RE</b>	Restricted to a group specified by the consortium (including the Commission Services)	
<b>CO</b>	Confidential, only for members of the consortium (including the Commission Services)	

## **Deliverable 3.1.2**

### **Database on prevalence and concentration of pathogens on TFP products**

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#### **Summary**

A retail survey was carried out in five hundred and forty eight (548) traditional European food products to determine the presence of foodborne pathogens and other spoilage microbiota. The examined products were classified into three main categories, namely fermented meats, dairy products and plant products. The main focus was given on major pathogens, such as *Escherichia coli* O157:H7, *Listeria monocytogenes* and *Salmonella* sp. However, depending on the specific characteristics of the food commodity under investigation, further pathogens were taken into account, such as *Bacillus cereus* and *Staphylococcus aureus*. In order to have a better overview of the microbiological condition of the products total viable counts were determined and spoilage microorganisms (coliforms, enterobacteria) were enumerated. Apart from microbiological data, the survey included information about the main physicochemical attributes such as pH, water activity ( $a_w$ ), NaCl content, nitrite concentration, and % moisture content. Finally, the suggested shelf-life and storage conditions provided by the manufacturer were reported. The information was combined in a single database developed on MS Access 2003 software to facilitate retrieval of the data. In the future, the developed database can be supplemented with new information for other types of products and could thus become a useful management tool for the food industry and other specialists in the sector.

An extended retail survey was carried out in a variety of traditional European food commodities to quantify the presence of pathogenic and other spoilage (indicator) microorganisms and establish the extent of contamination and the risk that is posed to the consumer. The main focus on pathogens was given on *Escherichia coli* O157:H7, *Listeria monocytogenes* and *Salmonella* sp. However, depending on the specific characteristics of the product under investigation, other pathogens were also taken into consideration, such as *Bacillus cereus* and *Staphylococcus aureus*. Other spoilage (indicator) microorganisms taken into account were coliforms, enterobacteria. Additionally, the total viable counts for each food commodity were determined. Microbial enumeration was based on direct counting techniques and more sensitive enrichment tests to define the presence/absence of foodborne pathogens.

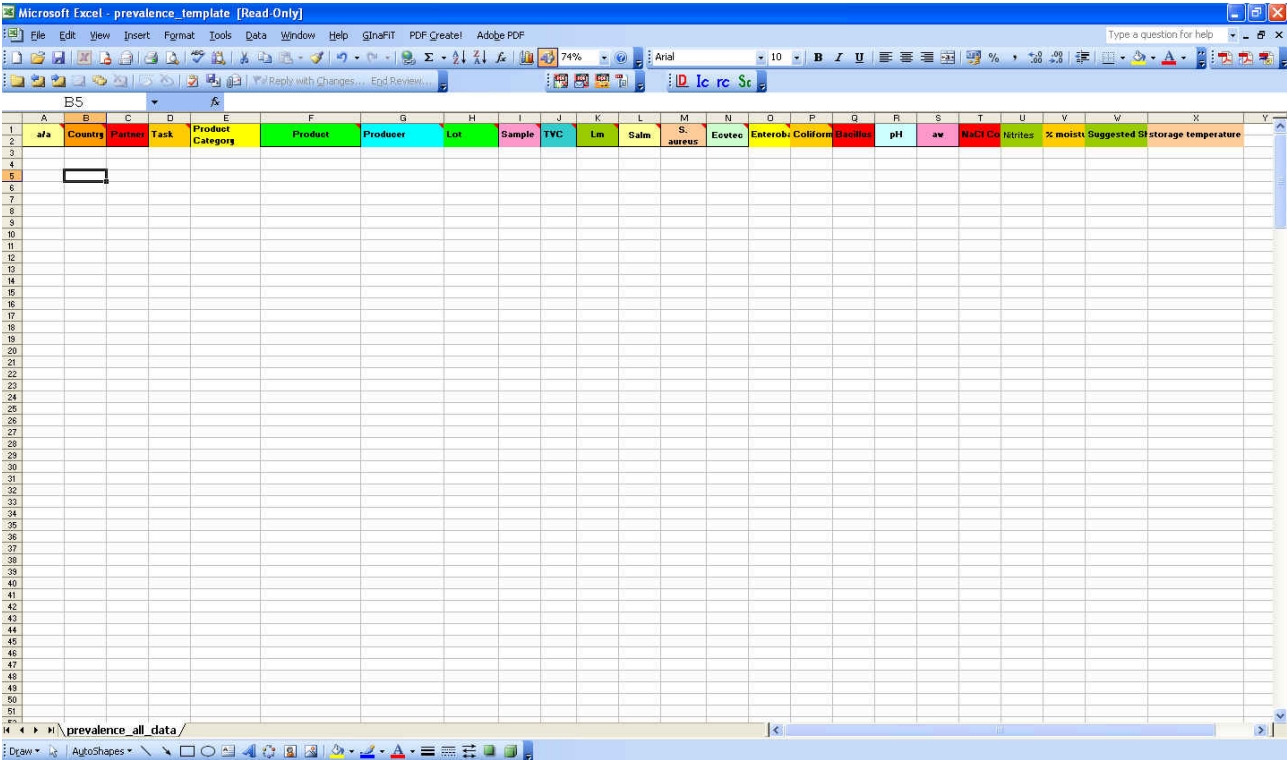
To this end, a special excel file was prepared and distributed among the partners (AUA, ESB, CCH) to be filled in (a general format of the file is presented below, Figure 3.1.2.1). The requested information was structured into four main parts.

- The first included data about the type of the product surveyed (sausage, cheese, etc), the name of the producer, the number of the lot and the number of samples analyzed.
- The second contained microbiological data such as total viable counts (tvc), as well as presence/absence or microbial counts of selected pathogens according to the product examined, such as *Listeria monocytogenes*, *Salmonella* sp., *Escherichia coli* O157:H7, *Bacillus cereus*, *Staphylococcus aureus*, enterobacteria and coliforms.
- The third part was related to the physicochemical properties of the product surveyed such as pH, water activity ( $a_w$ ), NaCl content, nitrite concentration, % moisture content.
- Finally, the last part included information about the suggested shelf-life and storage conditions as claimed by the producer.

Overall, five hundred and forty eight (548) products were surveyed by the three partners of WP3 involved in this task. The products were divided in three general categories: (a) fermented meat products, (b) dairy products, and (c) plant products.

The distribution and frequency of each partner and product category in the survey is outlined in Table 1. Subsequently, based on the information provided, a database was developed on MS Access/Visual Basic software to facilitate retrieval of relevant information. The format of the

database will allow the addition of new information in the future about prevalence in other types of products and could thus become a useful management tool for every interested party.



**Figure 3.1.2.1** Format of excel file for raw data collection on prevalence of pathogenic and spoilage microorganisms on selected traditional food products.



**Table 1.** Number of food samples (and corresponding percentages) surveyed by each partner and product category.

Partner	# Samples	Percentage (%)	Product category					
			Fermented meats		Dairy products		Plant products	
			# Samples	Percentage (%)	# Samples	Percentage (%)	# Samples	Percentage (%)
AUA	163	30	47	18	101	37	15	100
ESB	198	36	25	10	173	63	-	-
CCH	187	34	187	72	-	-	-	-
<i>Total</i>	548	100	259	100	274	100	15	100