

Monitoring the presence of *Listeria monocytogenes* in ready-to-eat foods in Cyprus

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Listeria monocytogenes

- ▶ *Listeria monocytogenes* (Lm)– bacterium that causes disease (listeriosis), especially to:
 - immunocompromised individuals,
 - people over 60 years old,
 - pregnant women and newborns.
- Usually through food consumption
- Symptoms: 2–70 days after consumption
- Fever, nausea, vomiting and diarrhoea. Also, meningitis. Mortality is very high.

Regulations (EC) 2073/2005 & 1441/2007 – Microbiological criteria on foodstuffs

- ▶ **Lm** in ready-to-eat foods (RTEFs) must always be ≤ 100 cfu/g. If not, \Rightarrow
 - a) product considered hazardous and withdrawn from the market, and
 - b) Competent Authorities take legal action against producer company.
- ▶ **HOWEVER**, **Lm** can multiply at refrigerator temperatures ($\geq 4^{\circ}\text{C}$),
THEREFORE, its mere presence in low levels, in packaged foods with a long shelf life is potentially hazardous

Regulations (EC) 2073/2005 & 1441/2007

RTEFs with

a) $\text{pH} \leq 4,4$ or

b) $a_w \leq 0.92$, or

c) $\text{pH} \leq 5,0$ and $a_w \leq 0.94$, or

d) a shelf life of < 5 days,

DO NOT support growth of Lm \Rightarrow only the limit of 100 cfu/g applies.

Regulations (EC) 2073/2005 & 1441/2007 – Foodstuffs that support growth of Lm

- ▶ If none of **a-d** apply, and

Lm contamination occurs during the production procedure



The food may support growth of **Lm**



Lm > 100 cfu/g before the expiry date

For these food categories, the Regulation requires the absence of *L. monocytogenes* from 25 g of food.

Regulations (EC) 2073/2005 & 1441/2007 – Foodstuffs that support growth of Lm

- ▶ If **Lm** is detected in such a sample,
 - ⇒ the producer must present to the Competent Authority a scientific shelf life study proving that Lm cannot exceed the limit of 100 cfu/g during the product's shelf life.
- ▶ In any other case, that particular batch of the product has to be withdrawn from the market.

SGL – National Monitoring Programme

- ▶ Food Microbiology Laboratory of the SGL
- ▶ Accredited according to EN ISO/IEC 17025:2005
- ▶ National Reference Laboratory (NRL) for **Lm** and coagulase positive staphylococci
- ▶ Implements a NMP in cooperation with the Health Inspectors Services – food samples from school canteens, supermarkets, restaurants, hospitals, national guard, imports, etc.
- ▶ Detection (EN ISO 11290–1) and/or enumeration (EN ISO 11290–2) of **Lm** in various food categories.

NMP – 2010

No of samples	Fish	Milk prod.	Coldcuts /Meat prod	Salads	Sandwich	Cooked Meals	Other	SUM
Total tested	24	446	146	167	294	325	363	1765
Lm tested	24	234	105	137	284	69	0	853
Lm >100 cfu/g	0	0	0	0	0	0	-	0
Lm detect.	1	0	0	0	0	0	-	1

SGL NMP – 2011

No of samples	Fish	Milk prod.	Coldcuts /Meat prod	Salads	Sandwich	Cooked Meals	Other	SUM
Total tested	25	296	108	109	255	349	356	1498
Lm tested	21	148	62	77	208	105	0	611
Lm >100 cfu/g	0	0	0	0	0	0	-	0
Lm detect.	1	0	2 (same batch)	1	0	0	-	4

EC Decision 2010/678 – Monitoring Programme

- ▶ EFSA (European Food Safety Authority) and ECDC (European Center for Disease Prevention and Control)
 - 2006–2007 reports
 - ⇓
 - Increase in the incidence of listeriosis (~1500 cases per year across the EU).
- ▶ Most common non-complying foods:
 - packaged heat-treated meat products,
 - soft and semi-soft cheeses and
 - smoked fish.

EC Decision 2010/678 – Monitoring programme for Lm

- ⇒ the European Commission Decision 2010/678/EU:
- ▶ 1 year monitoring programme, carried out by all MS
 - ▶ The prevalence of **Lm** in above food categories with a relatively long shelf life.
 - ▶ Programme almost completed – 90 samples from the market (Cypriot and other EU products) tested.
 - ▶ All samples examined just before their expiry
 - ▶ Fish products were also examined upon receipt.

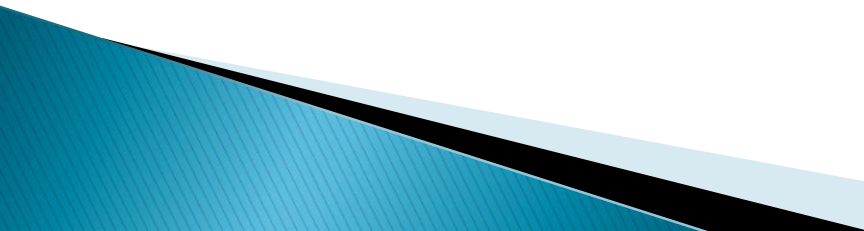
EC Decision 2010/678 - Monitoring Program 2010-2011

No of samples	Smoked Fish	Soft/ semi-soft cheeses	Meat products	SUM
Lm tested	30	30	30	90
Lm >100cfu/g	1	0	1	3
	1			
Lm detected	4	0	1	5
	4			

Results

- ▶ **Lm** > 100 cfu/g in only 2 fish products and 1 meat product.
- ▶ **Lm** detected in 5 other fish products
- ▶ The producers could not demonstrate any shelf life studies for their products.
- ▶ Absent from all cheese samples (25g).
- ▶ Detected in only 1 RTE meal (salad) but < 100 cfu/g

Comments – Conclusions

- ▶ The situation in the Cyprus market regarding **Lm** is generally very satisfactory.
 - ▶ Scope for improvement in packaged fish and meat products:
 - a) Improvement of hygiene of production procedure to eliminate risk of contamination
 - b) Shelf life studies to help calculate a safer product lifetime, so that **Lm** always < 100 cfu/g
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**Thank you for your
attention!**