

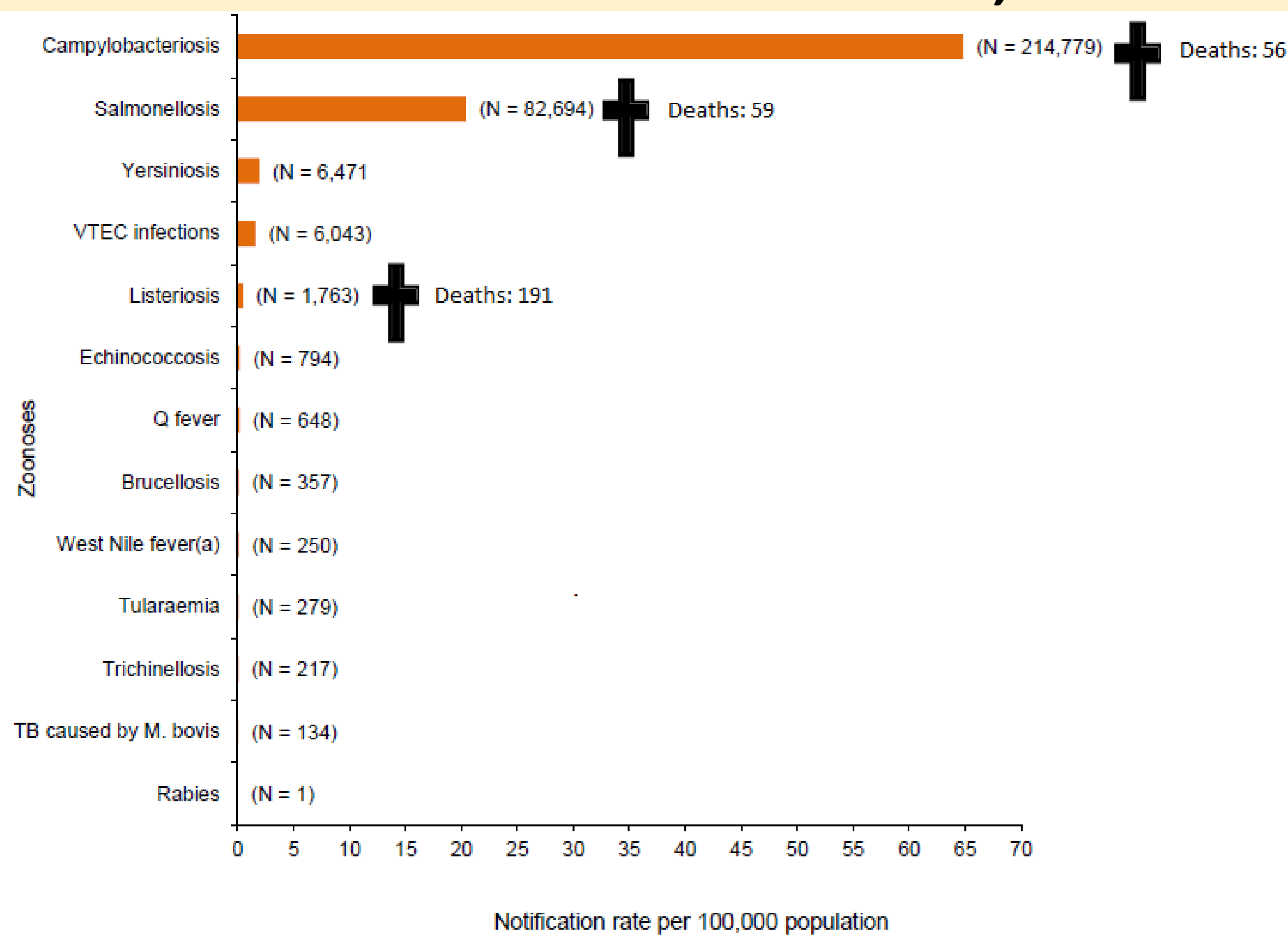
LISTERIA MONOCYTOGENES IN MEAT PRODUCTS

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Objectives

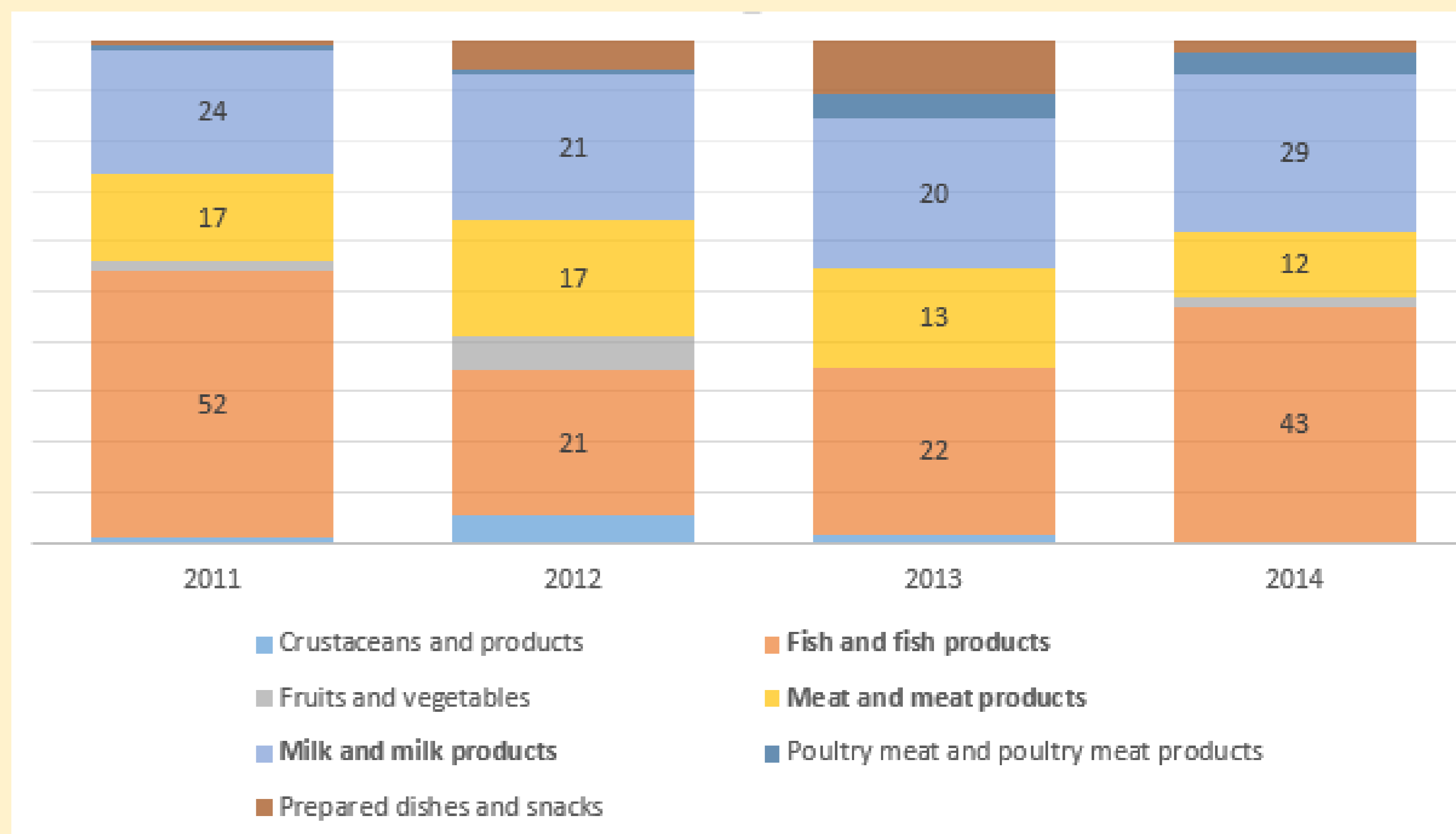
- Verify the importance of *Listeria monocytogenes* in RTE meat products.
- Know the characteristics of *L. monocytogenes* that explain its presence in RTE meat products.
- Research methods in order to reduce the incidences of *Listeria* in cured and cooked m. products.

Reported notification rates of zoonoses in confirmed human cases in the EU, 2013



EFSA y ECDC (European Food Safety Authority and European Centre for Disease Prevention and Control). The European Union Summary Report on Trends and Sources of Zoonoses, Zoonotic Agents and Food-borne Outbreaks in 2013.

Listeria monocytogenes notification alerts in Europe



Growth conditions for Listeria

Growth conditions	Minimum	Optimum	Maximum	Can survive (but not growth)
Temperature (°C)	-1,5 a 3,0	30,0 a 37,0	45,0	-18,0
pH **	4,2 a 4,3	7,0	9,4 a 9,5	3,3 a 4,2
Water activity (a _w)	0,90 a 0,93	0,99	>0,99	<0,90
Salt	<0,5	0,7	12 - 16	≥20

Physicochemical characteristics related with possible presence of Listeria

CURED-RAW MEATS

- pH: 4.5-5.2
- **NO₃ / NO₂⁻**: Slows the growth
- **Aw: 0.85**
- **Bacteriostatic and bactericidal substances**: Growth inhibition

COOKED MEATS

- pH: 6
- **Aw: 0.97**
- Can grow at low temperatures
- **Temperature** application or insufficient cooking **time**.
- **Contamination** after the product has been processed

Possible methods to reduce Listeria in RTE meat products.

Bacteriocins

- Nisin
- Pediocin PA-1
- Enterocin

N. antimicrobials

- Pomegranate peel extract
- Cranberry extract
- Celery extract

Packaging techniques

- Atmosphere packaging with Argon
- Vacuum with bacteriocins and HHP

High hydrostatic pressure

Conclusions

- The high mortality rate and the increasing number of alerts occurred both in Europe and Spain reveal the importance of *Listeria monocytogenes* in ready to eat products. Being considered specially important RTE meat products.
- The use of bacteriocins and bacteriocin-producing strains, natural antimicrobials, high hydrostatic pressure and packaging technologies are effective to reduce *Listeria* in RTE meat products.