

Listeria monocytogenes in smoked salmon

Introduction

According to an EFSA study have been 1.470 human cases of listeriosis in Europe. Consumption of contaminated food is the main route of transmission to humans.

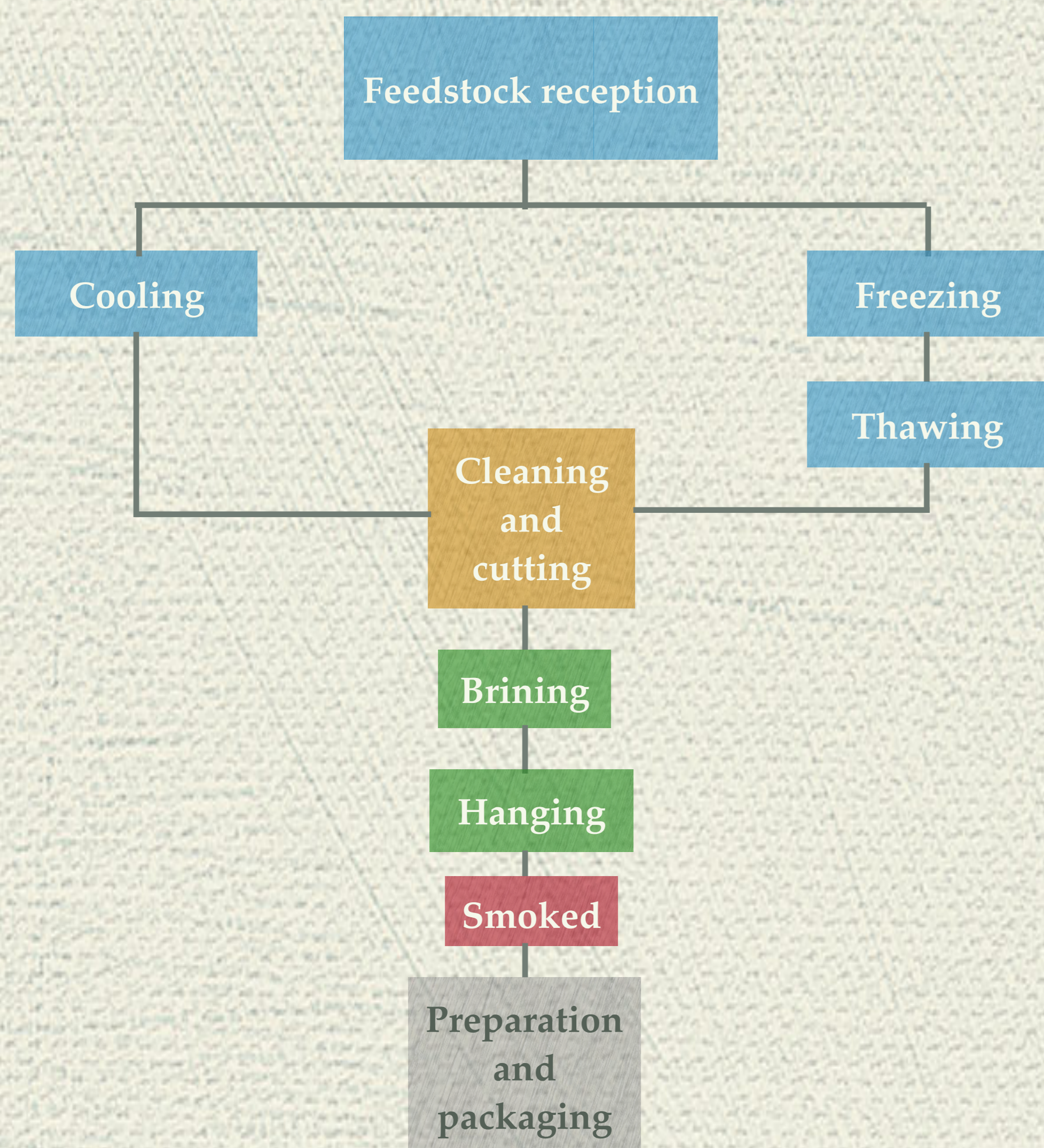
Cheese, raw vegetables and smoked fish are the most problematic food.

Objectives

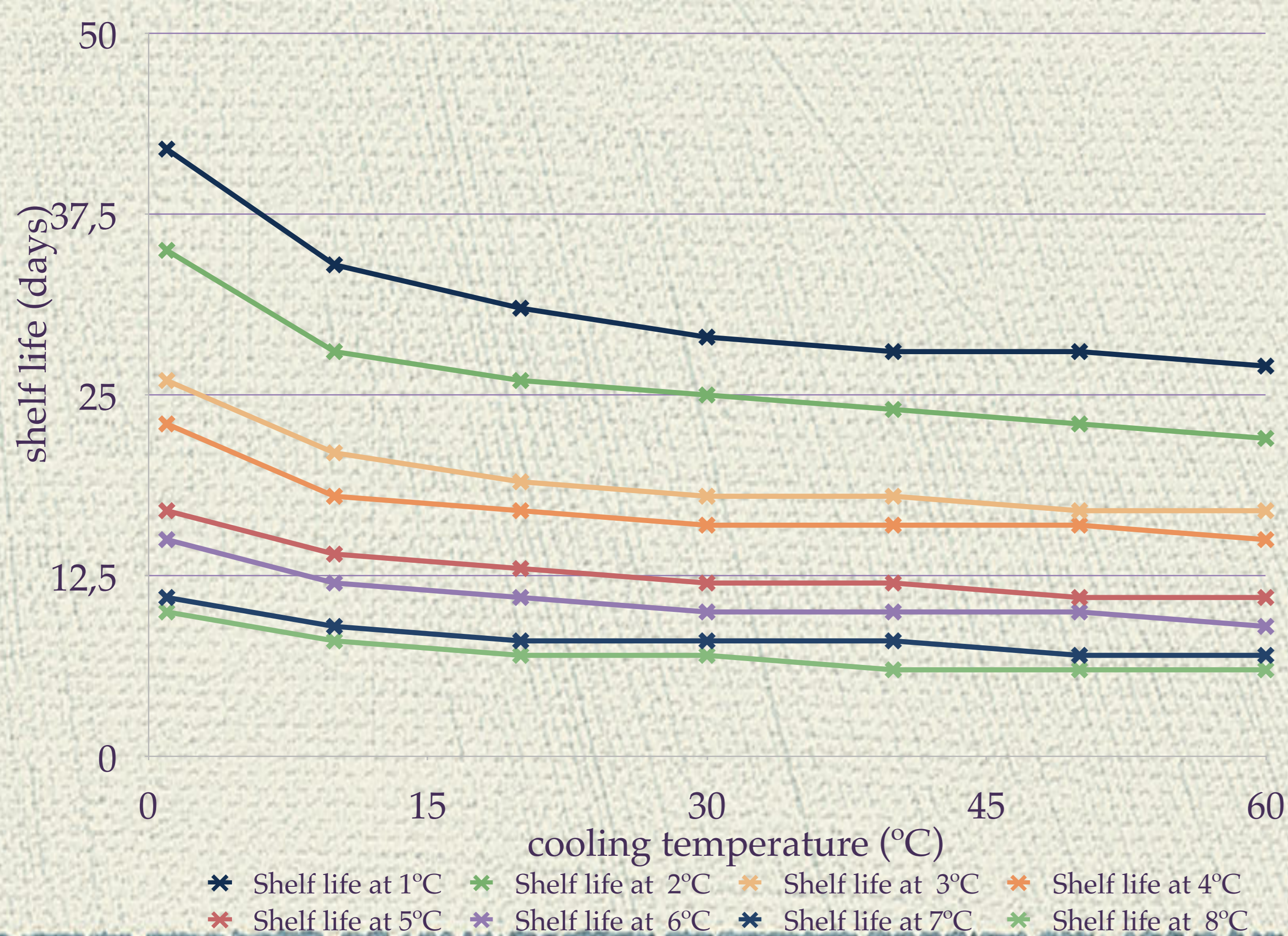
- know the main characteristics of *L.monocytogenes* and its incidence.
- Analyze the effect of smoke process on *L.monocytogenes*.
- Analyze the contamination sources and the preventive measures.
- Study of the shelf life of smoked salmon

Listeria monocytogenes is a gram-positive bacillus. It is a facultative bacterium that causes the listeriosis infection. *L.monocytogenes* is found in soil, plants, water and animals. It can grow at cooling temperatures and it is also tolerant to salt and acid.

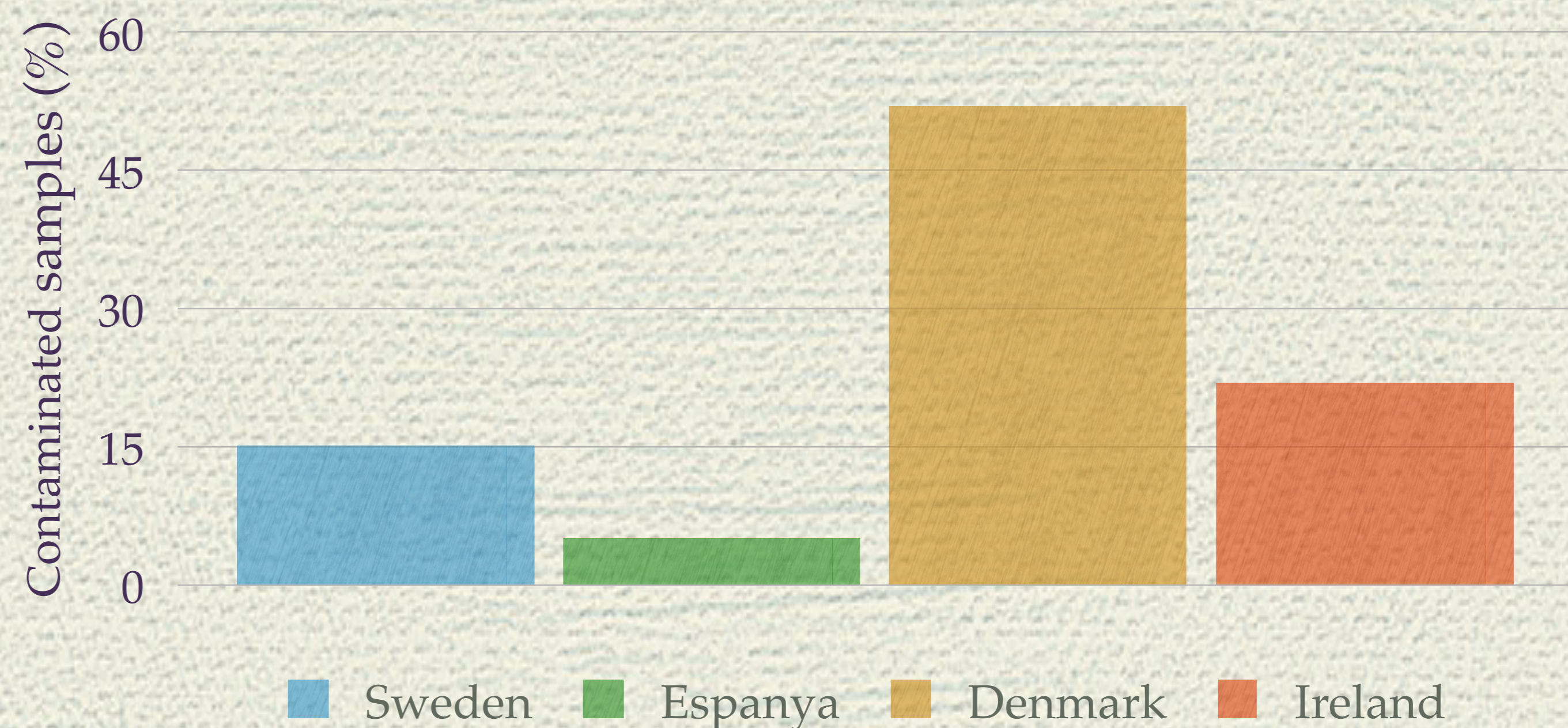
Smoked process



Smoked salmon shelf life exposed to different temperatures and initial contamination conditions



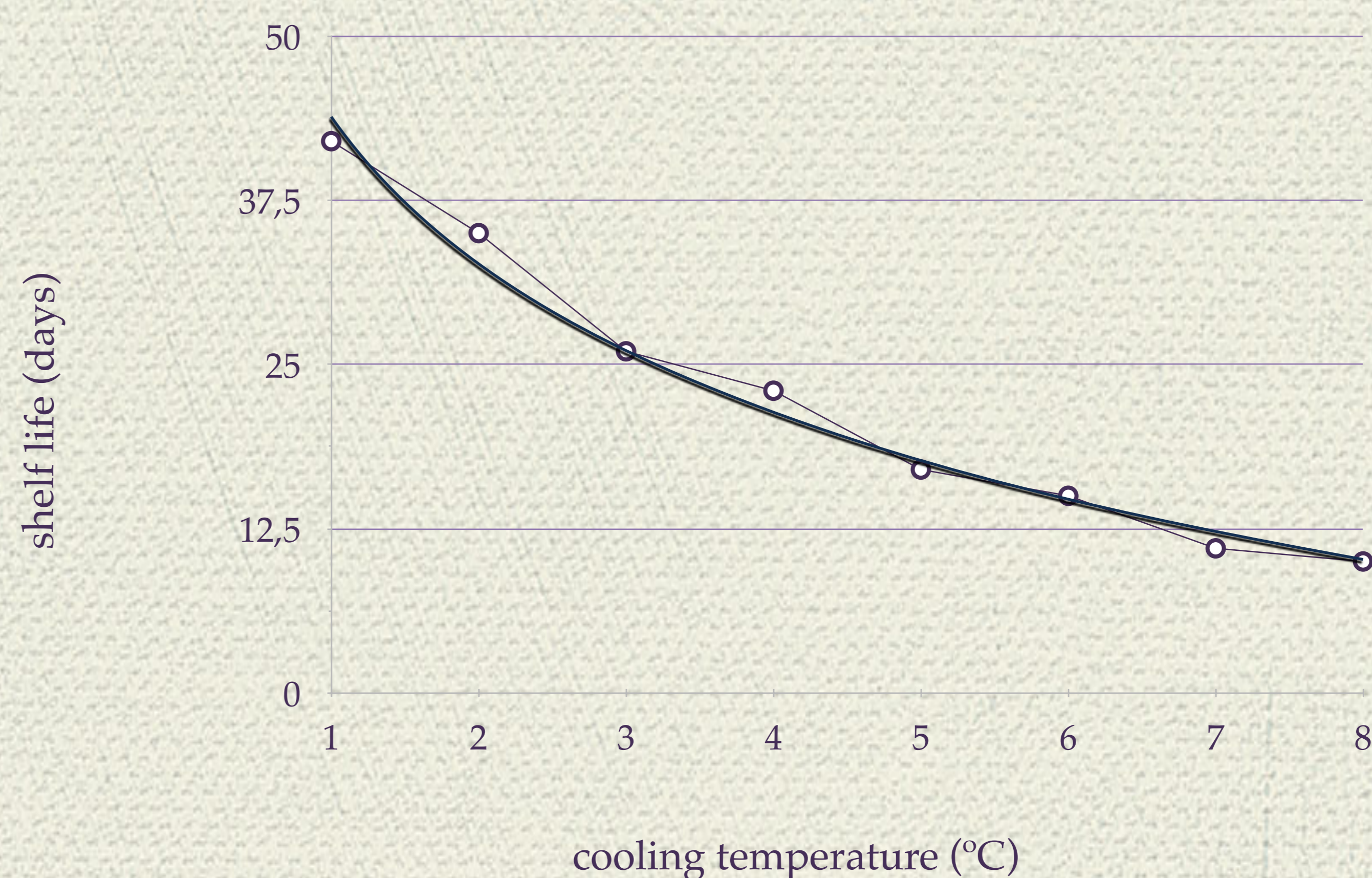
Listeria monocytogenes in smoked salmon samples



Preventive measures

- Antimicrobial activity of reuterin produced by *Lactobacillus reuteri* on *Listeria monocytogenes* in cold-smoked salmon. According to the results, the addition of purified reuterin at 10 AU/g inhibited the growth of *L. monocytogenes*.
- Effects of High Pressure, Subzero Temperature, and pH on Survival of *Listeria monocytogenes* in Smoked Salmon. Results showed that the most effective high pressure treatment to inactivate *L. monocytogenes* was 200 MPa, 18C, and pH 4.5.
- Reduction of *Listeria monocytogenes* in cold-smoked salmon by bacteriophage P100, nisin and lauric arginate, singly or in combinations. The results showed that the most effective combined treatments were phage P100 + lauric arginate or nisin + Lauric arginate, these treatments reduced *L. monocytogenes* to undetectable level.

Smoked salmon shelf life exposed to variable temperature conditions



Conclusions

- Smoked salmon has a shelf life of 23 days at 4°C.
- A 4,8% of incidence was detected in analyzed samples in Spain.
- Smoked salmon sources of contamination could be feedstock, water used during the process, manipulators and the equipment.
- Smoked processt is not effective on *L.monocytogenes*. It has sought other techniques to reduce or eliminate *L. monocytogenes* contamination.