Occurrence of *Listeria monocytogenes* in food products collected in Portugal from retail establishments and food plants

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**Introduction**

Important characteristics of *L. monocytogenes* contributing to foodborne transmission, are the ability to grow at refrigeration temperatures and in environments of reduced water activity, measures commonly used to control the growth of pathogens in foods. The occurrence of the microorganism in ready-to-eat foods is of more concern.

The incidence of *L. monocytogenes* in foods and the high fatality rate associated with listeriosis, has contributed to *L. monocytogenes* being considered a public health hazard and a continuing source of loss to food processors due to the large number of voluntary and obligatory recalls.

The aim of this work was the evaluation of the occurrence of *L. monocytogenes* in food samples collected in Portugal from retail and food plants. The detection of the microorganism was performed using the automated VIDAS system and the positive results were confirmed following the ISO 11290 standard.

**Materials and Methods**

During a period of two years (2007-2008) a total of 1476 food samples were examined for *L. monocytogenes*. 914 of the samples were from ready-to-eat products and 562 from raw products or other products needing heat treatment before consumption (Table 1).

**Results**

![Figure 1: Detection of *L. monocytogenes* using the automated VIDAS system protocol and confirmation of positive results following ISO 11290 standard](image)

*Figure 1: Detection of *L. monocytogenes* using the automated VIDAS system protocol and confirmation of positive results following ISO 11290 standard.*

*Figure 2: Occurrence of *L. monocytogenes* positive samples in different food products*

*L. monocytogenes* was detected in 134 (9.1%) of the analyzed samples. Most of the positive samples were from foods normally submitted to heat treatment before consumption (Fig. 2) such as pre-cooked foods (30.0%, 1240; pizza, pasta, risottos, etc), fermented meat products (20.6%, 331/160; farinheira, alheira, morcela, bacon) and raw products (16.0%, 58/362; raw meats, vegetables and fish). Figure 2 also shows the occurrence of the microorganism in ready-to-eat foods: fermented meat products (8.8%, 10/114), vegetable salads (1.1%, 2/174), ready-to-eat foods: fermented meat products (8.8%, 10/114), vegetable salads (1.1%, 2/174), ready-cooked meals (4.5%, 6/134), cheeses (4.6%, 12/262) and fresh cheese (1.3%, 1/86).

**Conclusion**

Effective cooking eliminates *L. monocytogenes*, but foods that will have a heat treatment at the consumer's home could represent a hazard if cross-contamination of food items that will be consumed without any further step of destruction, occurs.

This work shows that a wide range of different kinds of foodstuffs in Portugal can be contaminated with this pathogen. *L. monocytogenes* has the ability to multiply at refrigeration temperatures, which makes the occurrence in ready-to-eat or fermented foods (such as traditional Portuguese sausages) with a relatively long shelf life, of particular concern.

**References**


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