Available online at www.sciencedirect.com

ScienceDirect

Procedia Food Science 5 (2015) 156 – 159

Procedia Food Science

International 58th Meat Industry Conference "Meat Safety and Quality: Where it goes?"

Occurrence of *Listeria monocytogenes* in a Serbian salmon and seafood processing line during 2013

Brankica Lakicevic[a,*], Tatjana Baltic[a], Vesna Jankovic[a], Branko Velebit[a], Mirjana Dimitrijevic[b], Nenad Parunovic[a], Dragan Milicevic[a]

[a]*Institute of Meat Hygiene and Technology, Kacanskog 13, 11040 Belgrade, Serbia*
[b]*University of Belgrade, Faculty of Veterinary Medicine, Bulevar oslobodjenja 18, 11000 Belgrade, Serbia*

Abstract

The objective of this study was to examine the occurrence of *L. monocytogenes* in a selected fish and seafood processing line. Results showed that during 2013, 12.4 %, 8.3 % and 2.3 % of fish, seafood salads and environmental swabs were positive for *L. monocytogenes*. All positive food samples showed a contamination level below 100 CFU/g. Environmental swabs from surface of slicing and trimming tables, slicing machines, fish filleting and trimming knives, belt glazer and working table were positive for *L. monocytogenes*. Therefore, strict attention must be paid to cleaning and disinfection to control the level of *L. monocytogenes*.

Peer-review under responsibility of scientific committee of The 58th International Meat Industry Conference (MeatCon2015)

Keywords: L. monocytogenes; salmon; seafood; swabs; plant

1. Introduction

Listeria monocytogenes, an intracellular pathogen, is a cause of concern to food industries[1], mainly for those producing ready-to-eat (RTE) products. This bacterium, classified in Risk Group 2 for human infection, can differ in

* Corresponding author. Tel.: +381-11-2650-655; fax: +381-11-2651-825.
E-mail address: brankica@inmesbgd.com

Peer-review under responsibility of scientific committee of The 58th International Meat Industry Conference (MeatCon2015)
doi:10.1016/j.profoo.2015.09.045

many aspects from other foodborne pathogens[2]. Namely, it tolerates well salt and nitrite and grows under low oxygen conditions[3]. Seafood is known as a vehicle for the microorganism and has been linked to episodes of listeriosis[4]. Cold smoked salmon, a raw ready-to-eat food, poses a risk to human health if it is contaminated with pathogens along the food chain[5].

Taking into consideration the fact that studies on the prevalence of *L. monocytogenes* in food processing establishments in Serbia are lacking, the objective of the present study was to examine the occurrence of *L. monocytogenes* in a selected fish and seafood processing line during 2013.

2. Materials and methods

2.1. Samples

A total of 811 samples were tested over 1-year period (2013). Food samples consisted of 5 sample units collected from a production batch, which included fresh, hot and cold smoked salmon and seafood salads (squid, octopus and prawns). Samples from the processing environment (swabs from surfaces and drains) were also tested.

2.2. Microbiological method

Isolation and identification of *L. monocytogenes* was performed according to ISO 11290-1[6a.] while enumeration of *L. monocytogenes* was performed following the ISO 11290-2 method[6b].

2.3. Enzyme linked fluorescent assay

The procedure of detecting *L. monocytogenes* by compact automated miniVidas requires an enrichment step as indicated by the VIDAS LMX kit producer (bioMérieux, France). All positive results obtained by miniVIDAS were further confirmed by the ISO 11290-1[6a.] method (culture dependent).

2.4. PCR identification

The total genomic DNA from isolates was extracted using the PrepMan Ultra Sample Preparation reagent (Applied Biosystems, Foster City, USA) according to the manufacturer's instructions. PCR was performed in a final volume of 50 µl and thermal cycler 2720 (Applied Biosystems) was used with temperatures set at initial denaturation at 94°C for 5 min, followed by 35 cycles, each with a denaturation phase at 94°C for 30 sec, an annealing phase at 50°C for 45 sec and an extension phase at 72°C for 45 sec, followed by a final extension phase at 72°C for 5 min. Primers LM1 / LM2 were synthesized by Metabion GmbH (Martinsried, Germany) were for the listeriolysin O encoding gene (*hlyA*). The target gene specific for *L. monocytogenes* produced PCR products of 702 bp in size.

3. Results and Discussion

The overview of analyzed samples and occurrence of *L. monocytogenes* in the selected fish and seafood processing line in Serbia during 2013 is presented in Table 1.