Title: Use of Mericon *Listeria monocytogenes* kit® (QIAGEN) in RTE fish base products of real time PCR and comparison with ISO11290-1 method

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Abstract:

The seafood consumption has increased significantly worldwide. Along with this increase in demand for fish products at the international market, the seafood industry has faced growing concern about the safety of these commodities. Human foodborne infections are defined by high prevalence and low mortality rates. In the case of illness caused by Listeria monocytogenes *(L. monocytogenes*) the situation is different. The foodborne pathogen has caused numerous outbreaks of listeriosis, especially in defined high-risk groups (pregnant, neonates, persons of advanced age, immunocompromised persons) with a fatality rate of 20 up to 30%. Listeriosis is the fifth most common zoonotic disease based on surveillance data in 23 European countries in 2006, wherein the ready to eat (RTE) fish-based products are specially important in this transmition. Conventional methods for *L. monocytogenes* in these products, such as ISO 11290-1, still widely used in Brazil, has laborious, hight time consuming and reduced sensitivity. Current molecular techniques, such as real-time PCR, for example, are extremely sensitive, fast and effective for the detection of foodborne pathogens. On that basis, this study aimed to detect the presence of *L. monocytogenes* in fish-based product sample using an commercial kit of real-time PCR. The results were compared to those obtained with the conventional technique acoording to ISO 11290-1. There were analyzed ninety samples of the fish-based products sold in supermarkets from the coast of Santa Catarina. The samples included nine types of fish products, which were: ten samples of tuna pizza, ten samples of kani, ten samples of codfish balls, ten samples of fish dumpling, ten samples of fish burger, ten samples of fish fillet, ten samples of baked seafood, ten samples of hake nuggets and ten samples of nuggets kids. *L. monocytogenes* was detected in seven samples (7.77%) by real-time PCR protocol and in six samples (6.66 %) by ISO 11290-1 technique. The products which had positive samples were tuna pizza, codfish balls, fish fillet and fish balls. The results showed a high incidence of *L. monocytogenes* in fish-based products, and indicate that this kit can be used to detection this pathogen in foods with successfully and faster than the ISO methods.

Keywords: *L. monocytogenes*, Real-time PCR, Seafood products; RTE ; Comercial Kit;

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