Abstract

Cooking is gaining popularity as a creative and fulfilling leisure activity. In the quest for new flavors and culinary experiences, many individuals are experimenting with advanced techniques made more accessible by their prevalence, such as sous vide . This technique involves prolonged cooking of food at precisely controlled water temperatures. Equally, attention is being directed towards traditional yet previously less familiar recipes in certain regions, like ceviche—a dish made with raw fish marinated in citrus juice, celebrated in Latin American cuisines. This growing enthusiasm for exploring novel cooking methods reflects a global trend in appreciating culinary diversity and a desire to expand personal culinary skills.

Food preparation methods such as sous vide and ceviche may not provide adequate protection against *Listeria monocytogenes*, the causative agent of listeriosis. In the case of ceviche, the use of weak acids and a limited array of antibacterial components may be insufficient, particularly given the very short marination period. Conversely, the sous vide method, when applied to raw materials with low connective tissue content like fish, uses lower temperatures and shorter cooking times. Such conditions may favor variable virulence and antibiotic resistance in *L. monocytogenes*.

The research planned in this doctoral dissertation is based on knowledge about the occurrence of *Listeria* sp. and *L. monocytogenes* in raw materials, ready-to-eat fish products, and fish processing facilities, as reviewed in the literature. The experimental section examined the genome, pathogenic potential, and the effect of sous vide processing and ceviche preparation on L. monocytogenes strains.

Research carried out within the framework of the dissertation confirmed that both *Listeria* spp. and *L. monocytogenes* are more frequently found in ready-to-eat fish products than in raw materials. The strains derived from fish demonstrated a high pathogenic potential, as confirmed by virulome studies. Resistance analysis confirmed that the strains were mainly resistant to tetracyclines. The stress induced by culinary processing decreased the pathogenic potential, however, may cause an increase in tetracycline resistance.