LOCAL CHALLENGE PROJECT 2020: Accelerating the SDGs

MICROBIOLOGICAL AND CHEMICAL QUALITY OF ICE USED TO PRESERVE FISH

Project Overview

Ice is widely used to preserve fish on markets, playing a major role in the food industry. If manufactured, stored or distributed in inadequate sanitary conditions, it can represent a considerable health risk for both consumers and professionals. The goal of this project is to characterize ice used in marketplaces, on microbiological and chemical parameters. The aim is to assess potential risks on occupational exposure and consumer safety and plan orientation guidelines. Our project can be used as a model for ice quality monitoring in fish preservation, serving as a tool for quality control and contamination detection during the several process stages. This monitoring model is an important contribution for assuring the safety of the preserved products, as well as occupational health improvement and consumer risk protection.

Project Process

- In a total of eighteen marketplaces in the city of Lisbon, ice samples are collected at 3 different stages – production, storage and product-contact stage - and several indicators are evaluated;
- Monitored physical and chemical parameters – temperature, pH, free chlorine, nitrite (NO₂⁻), nitrate (NO₃⁻), ammonium (NO₃⁻), oxidability, conductivity, total hardness and chlorides.
- Monitored microbial parameters - Total Coliform, Escherichia coli, Enterococci, Salmonella, Staphylococcus aureus, heterotrophic plate count at 5°C, 22°C and 37°C.

Community engagement

The ongoing strategy is one way to act in terms of food security and nutrition for all citizens. Lisbon Municipality intends to involve the society to take part in its resilience process. A step up is given in terms of knowledge sharing and cooperation for access to science, technology and innovation and also to encourage effective partnerships.

Project Impact and Outcomes

Our project enables evaluation of the hygienic status of ice used in fish preservation, using drinking water regulations to define analytical parameters, but complementing it with specific food safety parameters. This model can be used around the globe to design specific local orientation guidelines of these highly specific facilities. Local orientation guidelines are now applied, combining occupational and consumer exposure risk evaluation, for health protection of fish market workers and consumers.