Lightly salted lumpfish roe. Composition, spoilage, safety and preservation

Traditional caviar products are often heavily salted and further preserved by addition of chemical preservatives. This industrial Ph.D. project has studied the problems associated with reducing the salt content and eliminating the chemical preservatives from the product. It was shown that Lactic Acid Bacteria (LAB) dominated the microbial flora after three months of storage at plus 5°C of this lightly salted product (approx. 4% water phase salt (WPS)), but also Enterobacteriaceae was found in high numbers, particularly when WPS was lower than 4%. A number of chemical indicators of spoilage were analysed, but only volatile sulphur compounds were related to sensory spoilage. The presence and growth of Listeria monocytogenes was identified as a possible health hazard. Experiments with biopreservation were unsuccessful, but the use of 2.8% (w/w) sodium lactate was found to be a possible alternative.