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Lactic Acid Solution and Aromatic Vinegar Nebulization to Improve Hunted Wild Boar Carcass Hygiene at Game-Handling Establishment: Preliminary Results

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Abstract : The wild boar (Sus scrofa) population has strongly increased across Europe in the last decades, also causing severe fauna management issues. In central Italy, wild boar is the main hunted wild game species, with approximately 40,000 animals killed per year only in the Umbria region. The meat of the game is characterized by high-quality nutritional value as well as peculiar taste and aroma, largely appreciated by consumers. This type of meat and products thereof can meet the current consumers' demand for higher quality foodstuff, not only from a nutritional and sensory point of view but also in relation to environmental sustainability, the non-use of chemicals, and animal welfare. The game meat production chain is characterized by some gaps from a hygienic point of view: the harvest process is usually conducted in a wild environment where animals can be more easily contaminated during hunting and subsequent practices. The definition and implementation of a certified and controlled supply chain could ensure quality, traceability and safety for the final consumer and therefore promote game meat products. According to European legislation in some animal species, such as bovine, the use of weak acid solutions for carcass decontamination is envisaged in order to ensure the maintenance of optimal hygienic characteristics. A preliminary study was carried out to evaluate the applicability of similar strategies to control the hygienic level of wild boar carcasses. The carcasses, harvested according to the selective method and processed into the game-handling establishment, were treated by nebulization with two different solutions: a 2% food-grade lactic acid solution and aromatic vinegar. Swab samples were performed before treatment and in different moments after-treatment of the carcasses surfaces and subsequently tested for Total Aerobic Mesophilic Load, Total Aerobic Psychrophilic Load, Enterobacteriaceae, Staphylococcus spp. and lactic acid bacteria. The results obtained for the targeted microbial populations showed a positive effect of the application of the lactic acid solution on all the populations investigated, while aromatic vinegar showed a lower effect on bacterial growth. This study could lay the foundations for the optimization of the use of a lactic acid solution to treat wild boar carcasses aiming to guarantee good hygienic level and safety of meat.

Keywords : game meat, food safety, process hygiene criteria, microbial population, microbial growth, food control
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