Salmonella prevalence in dry-fermented sausages from Catalan producers and meat suppliers, towards legislation compliance

Núria Ferrer-Bustins[1], Cristina Serra-Castelló[1], Montserrat Cortada[2], Laura Cabedo[2], Sara Bover-Cid[1], Anna Jofré[1]

[1] Food Safety and Functionality Programme, IRTA, Monells, Spain
[2] Servei de Vigilància, Control Alimentari i Alertes, Sub-direcció General de Seguretat Alimentària Protecció de la Salut, Generalitat de Catalunya, Barcelona, Spain

Introduction: Salmonella spp. alerts related to dry-fermented sausages (DFS) are recurrently being reported by food safety authorities, and up to eight salmonellosis outbreaks have been described in the last 5 years in the EU Rapid Alert System for Food and Feed. Food business operators must comply with regulations ensuring that the pathogen is below the detection limit in the product before its release to the market (Regulation (CE) 2073/2005). The aim of the present study was to evaluate the prevalence of Salmonella spp. in DFS from Catalonia, through the data gathered from the official "Biological hazards Surveillance Program" (BHSP) and a specific "Salmonella Control program" (SCP) implemented by the Catalan Public Health Agency.

Materials and methods: BHSP data included official control data collected in Catalonia during 2016-2019 from a representative part of the meat suppliers and DFS producers. Food business operators were randomly selected, comprising a total of 1117 official actions (testing one unit of product per batch). SCP data was collected from all 190 DFS producers operating in Catalonia during 2018 and 2019 (analysing 5 DFS units per batch) and their main meat suppliers (11 slaughterhouses, covering 71% of the pork production in Catalonia and 13 cutting plants). Additionally, SCP carried out a survey to check the implementation of the Hazard Analysis and Critical Control Points (HACCP) plan specifically for Salmonella in DFS.

Results: From BHSP data, pathogen prevalence in pig carcasses was 29.0% (N=904), in refrigerated pork was 10.3% (N=29), and in DFS was 2.5% (N=119). Within the SCP data, a 4.9% of non-compliance with the food safety microbiological criterion was observed within the 205 DFS production batches, the number of positive units ranging from 1 to 5 out of 5 sampled sausages. Regarding meat suppliers, Salmonella was detected in 50.0% of pig carcass batches and in 18.2% of refrigerated pork batches. Most of the producers considered Salmonella as a relevant hazard within the HACCP plan, about half of them considered it in the identified Critical Control Point (CCP) and 45% of the DFS producers declared to have a microbiological analytical plan to check the compliance with Salmonella regulation. Surprisingly, the odds ratio association showed that samples testing positive for Salmonella were more likely in the group of DFS producers declaring to have a CCP in the HACCP plan considering Salmonella as a relevant hazard and implementing microbiological testing before product release. Salmonella prevalence was associated with lower calibre DFS (e.g. fuet), while no positive result was found among higher calibre DFS (llonganissa), which could be associated with the length of the drying period (longer in llonganissa).

Conclusions: Salmonella Surveillance programmes and specific Control programmes allow to identify failures in the HACCP plans implemented by the food business operators, as well as improvement needs within the official control programmes. The information obtained from these types of official actions can provide interesting insights to design new strategies for a better control of the hazard.