A survey of AMR E. coli and Listeria spp. on raw, prepacked, farmed salmon fillets on retail sale in the UK (FS900350)

Area of research interest: Antimicrobial resistance
Study duration: 2024-01-01
Planned completion: 31 May 2025
Project status: Ongoing
Project code: FS900350
Conducted by: HallMark Meat Hygiene Ltd (sampling) and UK Health Security Agency (testing)

Background

The FSA's AMR and food surveillance activities over recent years has predominantly focussed on meat on retail sale in the UK. There is a need to expand our AMR surveillance to cover other non-meat and ready-to-eat (RTE) food commodities and these were identified as surveillance priorities at the FSA's AMR Research and Evidence Programme Review held in March 2023. Surveillance is important as it provides evidence on potential reservoirs of AMR in the food chain and the pathways by which consumers can become exposed to AMR bacteria through the handing and consumption of raw or less than thoroughly cooked foods. The data collected will inform the food safety commitments in a 5-year (2019-2024) AMR National Action Plan (NAP) and the new NAP (2024-2029) in development.

The Veterinary Antimicrobial Resistance and Sale Surveillance (2021 VARSS report) report suggested that the usage of antibiotics in UK farmed salmon industry had significantly increased since 2017. It showed that antibiotic usage in the salmon production sector was 8.9 tonnes in 2021 representing 43.1 mg/kg which is an increase of 13.8 mg/kg from the previous year (2020) and overall, 168% increase since 2017. The use of highest priority critically important antibiotics (HA-CIAs) in salmon decreased overall, since 2017. Salmon Scotland stated that this increase relates to use during the marine phase of production, with a decrease recorded in freshwater, and provided reassurance that antibiotics are only used in response to the clinical presentation of bacterial infection, not as a prophylactic treatment. This raises an important question as to whether UK retail salmon is contaminated with AMR bacteria, but we are currently lacking data on the prevalence of levels of AMR bacteria found in these products.

Objective and approach

To address this, we have commissioned a survey which will generate new baseline data on the extent by which salmon fillets on retail sale in the UK are contaminated with AMR bacteria. This survey will collect 300 samples of raw, prepacked, farmed salmon fillets on retail sale in the UK from January 2024 to February 2025 using an approach based on Defra's latest Family Food dataset as derived from the 2019/20 Expenditure and Food Survey.

The samples will be tested for the detection and enumeration of *E. coli* and *Listeria* spp. prior to testing for a range of AMR which will include Extended Spectrum Beta Lactamases (ESBLs),

AmpC, Carbapenems, colistin resistance and the colistin resistance *mcr* genes. Given that our previous AMR surveys have all looked at AMR *E. coli*, it is useful to continue this trend for raw salmon to allow comparisons of AMR data between salmon and raw meat (chicken, turkey, beef and pork). The inclusion of AMR *Listeria* in this survey follows the 2022 Listeria outbreak linked to smoked fish and therefore it would be useful to obtain data on *Listeria* in raw salmon to help fill an evidence gap in this part of the food chain.