Detection and typing of Verocytotoxin-producing Escherichia coli (VTEC): the proficiency test program of the European Union Reference Laboratory

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Since 2006, the EU-RL has developed and evaluated standard operating procedures for the identification and typing of VTEC and for their detection in food, mainly based on PCR detection of virulence genes. In particular, it coordinated the development of the Technical Specification CEN/ISO/TS 13136:2012 on the detection of VTEC in food and animal feed, based on the Real Time PCR (RT-PCR) screening of food enrichment cultures.

PT organized

7 PTs on the identification and typing of pathogenic E. coli strains:
detection of virulence genes by PCR and identification of the VTEC serogroups by serological and molecular methods. The last three PTs also included molecular typing by PFGE.

6 PTs on the detection of VTEC in different matrices:
carcass swabs, milk, spinach, water, seeds and sprouts analyzed by using CEN/ISO/TS 13136.

A web-based platform for submitting the PT results was developed and used since 2010.

Workflow of the platform

Select the sample and submit the Results in the form specific for every type of analysis.

Between 2007 and 2014, a positive trend was observed in both the number of participants (from 30 to over 50) and their performance.

Conclusions

Through its PT schemes, the EU-RL has consolidated a network of laboratories for the control of pathogenic E. coli in food:

- contribute to the knowledge of the epidemiology of VTEC infections in Europe
- gather harmonized data on the prevalence of VTEC in food
- provide VTEC with more standardized identification structures and tools to their practice and the public health and food safety