NRL *Salmonella* POLAND, National Veterinary Research Institute Pulawy, Poland

Magdalena Skarżyńska, Kinga Wieczorek
National Veterinary Research Institute established in 1945 as a scientific institution of the Ministry of Agriculture and Rural Development
ORGANISATION OF VETERINARY LABORATORY DIAGNOSIS IN POLAND

MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT

Chief Veterinary Officer
General Veterinary Inspectorate

National Veterinary Research Institute
National Reference Laboratories
Scientific and Technical Supervision of RVLs

Regional Veterinary Laboratories

Labs approved by CVO

Regional Veterinary Inspectorates

County & Border Veterinary Inspectorates

Regional Veterinary Laboratories (32)
NVRI Mission:

* Diagnosis and prophylaxis of infectious diseases of animals
* Hygiene and toxicology of food of animal origin and animal feeds
* Protection of the environment
* Training - the Institute runs postgraduate training and professional specialisation
NRL Salmonella Poland

- National Reference Laboratory for Salmonella in animals - primary production stage (13 Feb, 2003)

NRL Activities

- Cooperation with the EURL
- Distribution of information received from the EURL
- Scientific & technical assistance to the Ministry of Agriculture, veterinary inspection
- Supervision of Regional Veterinary Laboratories
Salmonella detection in animal faeces 2013
(23 public and 7 private labs)

* positive samples - Salmonella Typhimurium ATCC 14028 at low (ca. 8±3 c.f.u.) and high (ca. 119±19 c.f.u) contamination level

* blank samples - Citrobacter freundii ATCC 43864 +natural microbial flora
Proficiency test – 2013; serovars selected for *Salmonella* identification

<table>
<thead>
<tr>
<th>Serovar</th>
<th>O antigenes</th>
<th>H antigenes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agama</td>
<td>4,12</td>
<td>i : 1,6</td>
</tr>
<tr>
<td>Enteritidis</td>
<td>1,9,12</td>
<td>g,m : -</td>
</tr>
<tr>
<td>Gloucester</td>
<td>1,4,12,27</td>
<td>i : l,w</td>
</tr>
<tr>
<td>Hadar</td>
<td>6,8</td>
<td>z₁₀ : e,n,x</td>
</tr>
<tr>
<td>Lagos</td>
<td>1,4,[5],12</td>
<td>i : 1,5</td>
</tr>
<tr>
<td>Mbandaka</td>
<td>6,7,14</td>
<td>z₁₀ : e,n,z₁₅</td>
</tr>
<tr>
<td>Muenchen</td>
<td>6,8</td>
<td>d : 1,2 : [z₆₇]</td>
</tr>
<tr>
<td>Putten</td>
<td>13,23</td>
<td>d : l,w</td>
</tr>
<tr>
<td>Stanley</td>
<td>1,4,[5],12,[27]</td>
<td>d : 1,2</td>
</tr>
<tr>
<td>Virchow</td>
<td>6,7</td>
<td>r : 1,2</td>
</tr>
</tbody>
</table>
Percentage of correct results in the serological identification of *Salmonella* during proficiency testing organized between 2003 - 2013.
NRL Activities

* Training courses for personnel of regional laboratories (individual trainings – 15 persons per year, National *Salmonella* Control Programs 2009 - 2012 – 593 employees of Veterinary Inspection),

* Inspections,

* Annual meetings.
NRL Activities

* *Salmonella* isolation and identification
* Epidemiological typing (PFGE, MLST, PCR, susceptibility testing, plasmid profiling)
* Surveillance
* Collection and confirmation of *Salmonella* strains isolated by Regional and Private Veterinary Laboratories under implementation of European Regulations 2160/2003 and 2073/2005 (serotyping over 1000 *Salmonella* isolates received from animals, food of animal origin and feeds per year)
Salmonella serovars confirmed in NRL during the years 2010 – 2013; N=4775

- S. Enteritidis: 35%
- S. Infantis: 17%
- S. Typhimurium: 9%
- S. Mbandaka: 8%
- S. Newport: 5%
- S. Virchow: 3%
- S. Kentucky: 3%
- S. Indiana: 2%
- S. sp. (rough): 2%
- S. Agona: 2%
- S. Saintpaul: 2%
- Other: 12%
Area of interest

- National Reference Laboratory for *Salmonella* and Antibiotic resistance
- Antibiotic resistance monitoring of *Salmonella* & commensal *E. coli* (EU decisions and EFSA recommendations)
- Epidemiology of *Salmonella*
- *Salmonella* in pet reptiles – 2 new serovars isolated in NRL *Salmonella* Poland (*S. enterica subsp. enterica* 47:z₄,z₂₃:- and *S. enterica subsp. houtenae* 11:z₄,z₂₄:-)
- Role of wildlife as a reservoir of *Salmonella* for animals and humans - Prevalence of *Salmonella* serovars in game animals
Prevalence and characterisation of quinolone resistance mechanisms in *Salmonella* spp.

Dariusz Wasyl, Andrzej Hoszowski, Magdalena Zając

Department of Microbiology, National Reference Laboratory for Salmonella and Antimicrobial Resistance, National Veterinary Research Institute, Poland

**Original Article**

Occurrence and Characterization of Monophasic *Salmonella enterica* Serovar Typhimurium (1,4,[5],12:i:-) of Non-Human Origin in Poland

Dariusz Wasyl and Andrzej Hoszowski


DOi: 10.1556/AVet.2013.02

First published online 16 July 2013

Short communication

Genetic lineages of *Salmonella enterica* serovar Kentucky spreading in pet reptiles

Magdalena Zając, Dariusz Wasyl, Andrzej Hoszowski, Simon Le Hello, Krzysztof Szulowski

**Contents lists available at ScienceDirect**

Veterinary Microbiology

journal homepage: www.elsevier.com/locate/vetmic

**Contents lists available at ScienceDirect**

Food Research International

journal homepage: www.elsevier.com/locate/foodres

First isolation of ESBL-producing *Salmonella* and emergence of multiresistant *Salmonella* Kentucky in turkey in Poland

D. Wasyl, A. Hoszowski

National Reference Laboratory for Salmonella, Department of Microbiology, National Veterinary Research Institute, Poland

**Contents lists available at ScienceDirect**

Food Research International

**Original Article**

Identification of Common, Non-Typable and Autoagglutinating *Salmonella* Strains with Premi™ Test *Salmonella* Assay

Magdalena Zając, Andrzej Hoszowski and Dariusz Wasyl

Med. Weter., 2012, 68 (7) 411


Salmonella serovars in animals, food and feed during the years 2005-2010 in Poland

Medycyna Wet., 2011, 67 (3) 194

Hoszowski A., Lalak A., Zając M., Samcik I., Skarzyńska M., Wnuk D., Wasyl D.

Relationships of rough Salmonella strains with representatives of some serovars found in animals


DOi: 10.2478/v10213-012-0081-6

**Contents lists available at ScienceDirect**

Food Research International

journal homepage: www.elsevier.com/locate/foodres

**Original Article**

Molecular Epidemiology of *Salmonella enterica* Serovar SaintPaul Isolated From Animals, Food, and Humans in 12 European Countries

Dariusz Wasyl, Magdalena Zając, Derek J. Brown, Henry Kuronen, Kim van der Zwaluw, and Andrzej Hoszowski
NRL Salmonella in food

Department of Hygiene of Food of Animal Origin


- **NRL also for** - *Campylobacter*, *Listeria monocytogenes*, *Escherichia coli*, including verotoxigenic E. coli (VTEC) strains, *Salmonella*, *Staphylococcus* sp., including *Staphylococcus aureus*, and enterotoxins, antimicrobial resistance of *Campylobacter* sp., *Staphylococcus* sp., and enterococci, detection of bacteria and marine biotoxins in bivalve molluscs, hygiene of raw milk, including total bacteria and somatic cell counts, heat treatment of milk and milk products, including alkaline phosphatase determination, antibacterial drug residues.
Main research activity:

- Prevalence of main pathogens (including *Salmonella*) in food of animal origin
- Analysis of resistance to antimicrobials and molecular characteristic of *Salmonella* spp. and other food-borne pathogens

Prevalence and characterisation of *Salmonella* in slaughtered cattle and beef in Poland

Krzysztof Wieczorek, Jakub Osek

Department of Animal Pathology, National Veterinary Research Institute, Pasteurów 27, 26-100 Pulawy, Poland

Email: k.wieczorek@paw.gov.pl

Received November 8, 2011; Accepted November 28, 2011

Molecular characterization and antibiotic resistance profiling of Campylobacter isolated from cattle in Polish slaughterhouses

Krzysztof Wieczorek*, Edyta Denis*, Ola Lynch†, Jakub Osek*

*Department of Animal Pathology, National Veterinary Research Institute, Pasteurów 27, 26-100 Pulawy, Poland
†National Veterinary Research Institute, Wegierska 31, 05-951 Warszawa, Poland

Original article

Simultaneous occurrence of selected food-borne bacterial pathogens on bovine hides, carcasses and beef meat

K. Wieczorek, J. Osek

Department of Hygiene of Food of Animal Origin, National Veterinary Research Institute, Pasteurów 27, 26-100 Pulawy, Poland
NRL for *Salmonella* in food

**NRL Activities**

* Coordinates official laboratories responsible for the analysis of samples of official controls – organize proficiency tests, **control visits**, trainings, preparing opinions and reports for competent authorities

* Dissemination of information from EURL to the competent authority and official national laboratories - every year organize seminary for official laboratories
NRL for Salmonella in food

PT organised by NRL
<table>
<thead>
<tr>
<th>Year</th>
<th>Template</th>
<th>Salmonella</th>
<th>Level of contamination</th>
<th>Number of participants</th>
<th>Unsatactory results</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>Pork meat</td>
<td>S. Enteritidis ATCC 13076</td>
<td>50 cfu/25 g</td>
<td>24</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Poultry meat</td>
<td>S. Enteritidis ATCC 13076</td>
<td>50 cfu/25 g</td>
<td>23</td>
<td>2</td>
</tr>
<tr>
<td>2007</td>
<td>Poultry meat</td>
<td>S. Enteritidis ATCC 13076</td>
<td>20 cfu/25 g</td>
<td>44</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Pork meat</td>
<td>S. Typhimurium ATCC 14028</td>
<td>10 cfu/25 g</td>
<td>42</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Swab samples</td>
<td>S. Typhimurium ATCC 14028</td>
<td>50 cfu/swab</td>
<td>30</td>
<td>1</td>
</tr>
<tr>
<td>2008</td>
<td>Swab samples</td>
<td>S. Typhimurium ATCC 14028</td>
<td>50 cfu/swab</td>
<td>44</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Poultry meat</td>
<td>S. Enteritidis ATCC 13076</td>
<td>10 cfu/25 g</td>
<td>44</td>
<td>5</td>
</tr>
<tr>
<td>2009</td>
<td>Swab samples</td>
<td>S. Enteritidis ATCC 13076</td>
<td>50 cfu/swab</td>
<td>28</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Pork meat</td>
<td>S. Enteritidis ATCC 13076</td>
<td>50 cfu/25 g</td>
<td>43</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Pork meat</td>
<td>S. Enteritidis ATCC 13076</td>
<td>30 cfu/25 g</td>
<td>36</td>
<td>1</td>
</tr>
<tr>
<td>2010</td>
<td>Swab samples</td>
<td>S. Enteritidis ATCC 13076</td>
<td>50 cfu/swab</td>
<td>44</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Poultry meat</td>
<td>S. Enteritidis ATCC 13076</td>
<td>30 cfu/25 g</td>
<td>38</td>
<td>2</td>
</tr>
<tr>
<td>2011</td>
<td>Swab samples</td>
<td>S. Enteritidis ATCC 13076</td>
<td>50 cfu/swab</td>
<td>44</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Poultry meat</td>
<td>S. Enteritidis ATCC 13076</td>
<td>30 cfu/25 g</td>
<td>38</td>
<td>2</td>
</tr>
<tr>
<td>2012</td>
<td>Swab samples</td>
<td>S. Typhimurium ATCC 14028</td>
<td>100 cfu/swab</td>
<td>41</td>
<td>2</td>
</tr>
</tbody>
</table>
### NRL for *Salmonella* in food

**PT organized by NRL in 2013**

<table>
<thead>
<tr>
<th>Round</th>
<th>01</th>
<th>02</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of participants</strong></td>
<td>38</td>
<td>42</td>
</tr>
<tr>
<td><strong>Template</strong></td>
<td>Poultry meat</td>
<td>Swab samples</td>
</tr>
</tbody>
</table>
| **Microorganism** | S. Enteritidis ATCC 13076 | S. Typhimurium ATCC 14028  
*E. coli* ATCC 25922 |
| **Level of contamination** | S. Enteritidis – 30 cfu per sample | S. Typhimurium – 100 cfu per sample  
*E. coli* – 200 cfu/per sample |
| **Reference results** | Positive for contaminated samples  
Negative for not contaminated samples |
| **Satisfactory results** | 74 (97%) | 80 (98%) |
| **Unsatisfactory results** | 2 (3%) | 2 (2%) |
| **Methods used** | ISO 6579:2003 – 23 (61%)  
PCR – 5 (13%)  
mini Vidas – 4 Uczestników (11%)  
PCR – 8 (20%)  
mini Vidas – 3 Uczestników (7%)  
PN-EN ISO 6579:2003+A1:2007 - 3 (7%) |
| **Accreditation of methods used** | 35 (92%) | 30 (73%) |
Thank you for your attention