



# Serovars of *Salmonella* strains isolated from foodstuffs of animal origin in Belgium

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## Conclusions

- This study is the first random surveillance plan in Belgium for *Salmonella* in foods from animal origin. The results show the same trends than in the other developed countries. Surprisingly, *Salmonella* serotype Hadar has been isolated only from broiler and turkey but not from layer.

## Material and Methods

- For this study, the following types of meat were investigated: swab samples from pork, veal and beef carcasses, pork, veal and beef liver, pork and beef trimmings, minced meat and poultry (broiler, layer and turkey) carcasses and liver.
- From each sample, 25 g were pre-enriched at 37°C in 225 ml Buffered Peptone Water. After 16 to 20 h incubation, 0,1 ml was transferred onto the center of the Diagnostic Semisolid *Salmonella* Agar (Diassalm) and into 10 ml Rappaport-Vassiliadis enrichment medium (RV). Both media were incubated at 42°C during 24 h. From RV, a loopful was streaked onto Xylose Lysine Desoxycholate agar (XLD). Diassalm plates were examined for the presence of a migration zone. From typical migration zones a loopful was streaked onto XLD. The selective plates were incubated at 37°C for 24 h.
- Suspected colonies were examined biochemically for confirmation of the presence of *Salmonella*.
- Serotyping was performed by the Belgian *Salmonella* and *Shigella* Reference Laboratory of the Public Health Institute - Louis Pasteur.

## Discussion

- These results are similar than those obtained by the other European countries. The *Salmonella* Hadar isolates, an emergent serotype, were only isolated from samples from broilers and turkeys and not from layers, pork or cattle. Other typing methods, such as lysotyping, genetic typing or antibiotic resistance profile, will be used in 1998 in order to precise the epidemiological relationship and the medical importance.

## References

- anonymous (1998) Trends and sources of zoonotic agents in animals, feeding stuff, food and man in the European Union in 1996. Draft prepared by the Community Reference Laboratory on the Epidemiology of Zoonoses, BgVV, Berlin, Germany
- van Netten P., van der Zee H., van de Moosdijk A. (1991) The use of a diagnostic semi-solid medium for the isolation of *Salmonella* Enteritidis from poultry. Proc. 10th Symposium on the Quality of Poultry Meat, Doorwerth, The Netherlands, 59-66.
- Pohl P., Imberechts H., Stockmans A., Marin M. (1998) Serovars of Belgian *Salmonella* isolates serotyped during the period 1992-1997 and, evolution among poultry, pigs and cattle isolates 1984-1997 and antimicrobial resistance. Report published by the Veterinary and Agrochemical Research Center, Ministry of Middle Class and Agriculture.

## Introduction

- Salmonella* is among the most important meat pathogen worldwide. The prevalence and the level of contamination are essential for an efficient risk assessment program but all the different serovars have not the same virulence potentiality.
- To analyse the repartition of the various serovars in meat from the main animal species, the strains isolated from foods in 1997 by the Belgian zoonosis random surveillance program have been serotyped and compared with the most frequent serotypes isolated from human salmonellosis cases or from animals in Belgium and other European countries.

## Results

Table 1. Main serovars of *Salmonella* spp in Belgian foods

Main serotypes (group)	Human cases* % n=12008	Cattle % n= 23	Pork % n= 109	Layer % n= 111	Broiler % n= 146	Turkey % n= 6
<i>S. Enteritidis</i> (D)	51,2	-	1,8	45	33,6	33,3
<i>S. Typhimurium</i> (B)	29,3	47,8	25,6	4,5	3,4	-
<i>S. Hadar</i> (C)	5,0	-	-	-	19,9	33,3
<i>S. Infantis</i> (C)	2,2	-	5,5	17,1	9,6	-
<i>S. Brandenburg</i> (B)	1,8	-	14,7	-	-	-
<i>S. Virchow</i> (C)	1,5	-	-	1,8	10,3	16,7
<i>S. Bovismorbificans</i> (C)	1,1	-	11,9	-	-	-
<i>S. Derby</i> (B)	1,0	4,3	16,5	-	-	-
<i>S. Panama</i> (D)	0,5	-	1,8	-	-	-
<i>S. Livingstone</i> (C)	0,4	-	-	2,7	-	-
<i>S. Blockley</i> (C)	0,3	4,3	-	-	-	-
<i>S. London</i> (E)	0,3	-	6,4	0,9	0,7	-
<i>S. Newport</i> (C)	0,3	-	-	0,9	-	-
<i>S. Indiana</i> (B)	0,2	-	1,8	-	5,5	16,7
<i>S. Agona</i> (B)	0,2	-	-	-	0,7	-
<i>S. auto-agglutin.</i>	0,1	4,3	2,8	-	2,1	-
<i>S. Ohio</i> (C)	0,1	4,3	-	0,9	-	-
<i>S. Give</i> (E)	0,1	-	3,7	-	-	-
<i>S. Bredeney</i> (B)	0,1	-	0,9	-	-	-
<i>S. Braenderup</i> (C)	0,1	-	-	9,9	2,1	-
<i>S. Anatum</i> (E)	0,1	-	-	-	0,7	-
<i>S. Muenchen</i> (C)	0,1	-	-	0,9	-	-
<i>S. Heidelberg</i> (B)	0,1	-	-	-	0,7	-
<i>S. Dublin</i> (D)	< 0,1	17,4	-	-	-	-
<i>S. Mbandaka</i> (C)	< 0,1	8,7	-	1,8	2,1	-
<i>S. Manhattan</i> (C)	< 0,1	-	0,9	1,8	0,7	-

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