

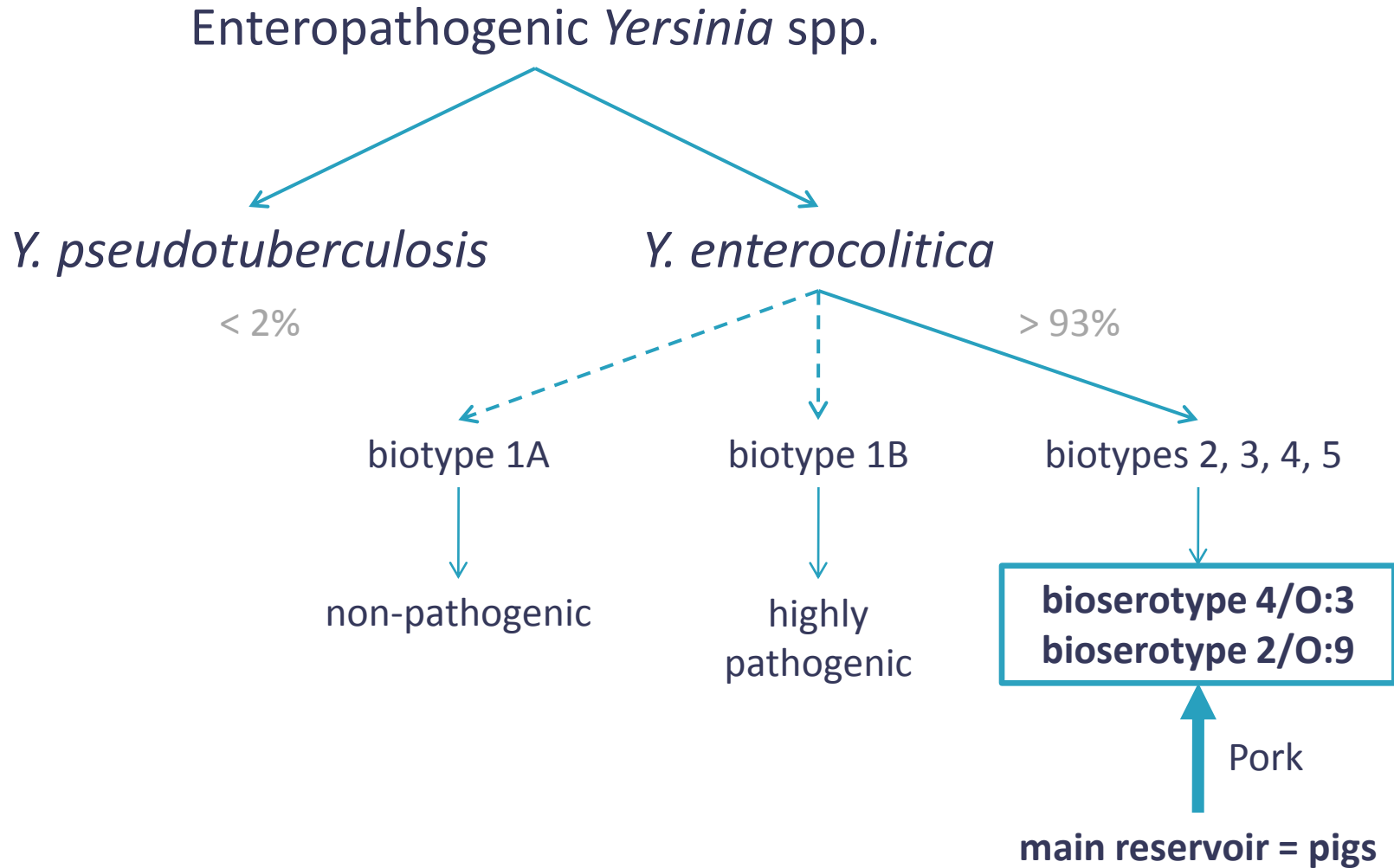


Contamination of pork carcasses during slaughter with enteropathogenic *Yersinia* spp.

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Introduction



Material and Methods

Sample collection

- 9 pig slaughterhouses in Belgium
- 10 pigs/sampling visit
- $n=180$
 - Tonsils
 - Rectal content
 - Carcass swabs

Pelvic duct

Split surface

Isolation methods

- Direct plating (CIN) → + quantification
- Selective enrichment (ITC, 25°C, 2d)
- Cold enrichment (PMB, 4°C, 7-14d)

Sternal region

Identification isolates (PCR):

- *ail*, *yst*, *virF* (pathogenic *Y. enterocolitica*)
- *rfbC*, *per* (serotypes O:3, O:9)
- *inv* (*Y. pseudotuberculosis*)

Mandibular
region

Results

Pathogenic *Y. enterocolitica*

n = 180

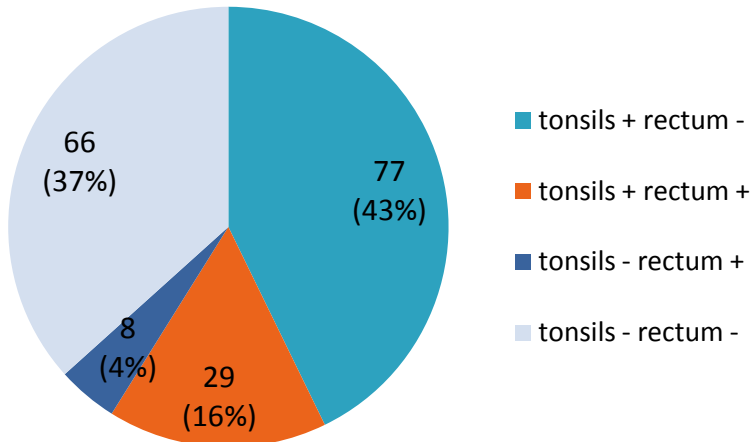
Sample type	Isolation method	Direct	Selective enrichment		Cold enrichment		Total
		CIN	ITC + CIN	ITC + KOH + CIN	PMB + CIN (7d)	PMB + KOH + CIN (14d)	
Tonsils	3.82 log ₁₀ CFU/g	78	70	79	79	99	103
Rectal content	2.91 log ₁₀ CFU/g	13	15	17	19	31	36
Carcass swabs							
Pelvic duct	1.45 log ₁₀ CFU	6	4	4	6	11	15
Split surface	1.58 log ₁₀ CFU	3	5	6	2	14	17
Sternal region	1.30 log ₁₀ CFU	1	3	10	2	26	31
Mandibular region	1.71 log ₁₀ CFU	17	10	17	9	56	59

=> methodological problem

Results

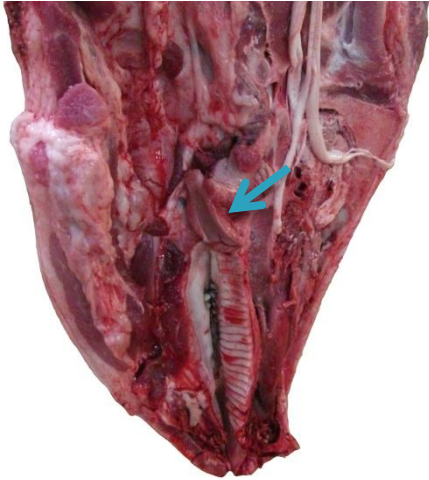
$n = 180$

Sample type	<i>Y. enterocolitica</i>	<i>Y. pseudotuberculosis</i>	Total
Tonsils	103 (57.2%)	4 (2.2%)	106 (58.8%)
Rectal content	36 (20.0%)	1 (0.5%)	37 (20.5%)
Carcass swabs	76 (42.2%)	1 (0.5%)	76 (42.2%)



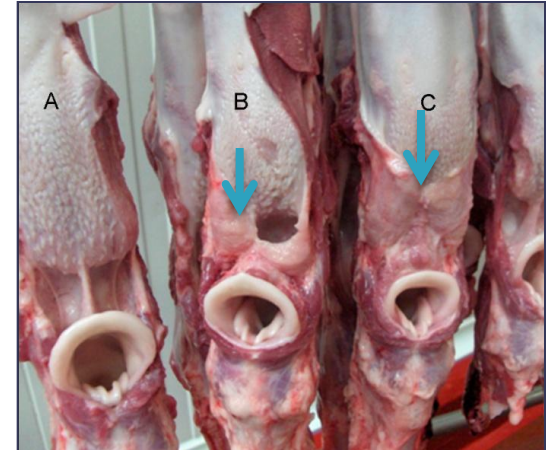
Rectal content = underestimation of positive animals

Discussion

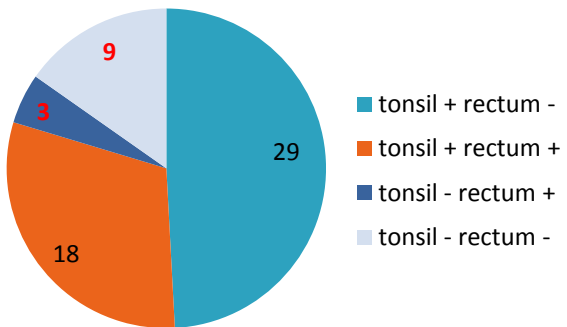


Removal plug set

Tonsils: 58.8%
3.82 log₁₀ CFU/g



Mandibular region: 33%



Cross-contamination ?

Veterinary inspection
(incision submaxillary lymph nodes)

Discussion

Split surface
9%

	<i>n</i>	Split surface positive
Head split	89	11
Head intact	91	6



Discussion

Pelvic duct
8%

Rectum	Pelvic duct	<i>n</i>	Proportion + vs -
+	+	7	0.24
+	-	29	
-	+	8	0.06
-	-	136	

Conclusion

- Prevalence of enteropathogenic *Yersinia* spp.
 - Tonsils and/or rectum (63%)
=> high proportion of pigs is carrier
 - Carcasses: 42%
=> possible growth at 4°C !
- Study ongoing
 - End of study: $n=360$
 - 1-year period => seasonal variation ?
 - Risk factors for carcass contamination
...to be continued...