

Supplementary data for article:

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Supplementary Tables for Nastasijevic *et al.*

Seasonal prevalence and characterization of Shiga toxin-producing *Escherichia coli* on pork carcasses at three steps of the harvest process at two commercial processing plants in the US

TABLE S1. Characterization of STEC O121(n=229) isolated from pork processing.

TABLE S2. Characterization of STEC O2, O5, O8, O20, O32, O55, O74, O86 and O91 isolated from pork processing.

TABLE S3. Characterization of STEC O103, O110, O112, O139, O141, O146 and O not typable isolated from pork processing.

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TABLE S5. Characterization of non-O157 EHEC isolates.

TABLE S1. Characterization of STEC O121(n=229)^a isolated from pork processing

		STEC O121																		
<i>n</i> ^b		2 (<i>sp</i>)	1	1	2	1	2	6	163	1 (<i>f</i>)	2 (<i>p</i>)	20	1	2 (<i>p</i>)	17	1	1	2	4 (<i>sp</i>)	
within season and plant ^c							+	+			+	+		+	+					
<u>Shiga toxin^d</u>	<i>stx_{1a}</i>	+																		
	<i>stx_{2e}</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+				
	<i>stx_{2x}</i>																	+	+	+
	<i>katP</i>		+	+	+	+												+		
<u>pO157^e</u>	<i>espP</i>		+																	
	<i>etpD</i>		+	+																
	<i>cnf1/2</i>																			
	<i>eastA I</i>	+				+	+	+	+	+	+								+	
	<i>eastA II</i>	+	+		+	+	+	+	+			+	+					+	+	
	<i>chuA</i>		+	+			+													
	<i>iha</i>		+					+		+			+	+				+		
	<i>saa</i>		+															+		

^aShiga toxin-producing *E. coli* serogroup O121, lacking intimin (*eae*) gene, not all isolates were available for characterization.

^bAll isolates recovered from skin of stunned exsanguinated pigs sampled along belly midline, unless indicated by letter(s) in parenthesis: s=skin, p=post-scald pre-evisceration pig carcasses, f=chilled finished pig carcasses.

^cWhen more than one similar strain was identified, “+” indicates whether the strains were all recovered during the same sample collection period and at the same plant.

^dShiga toxin gene subtypes. “*stx_{2x}*” indicates that the *stx₂* subtype could not be definitively identified.

^eGenes common to the large virulence plasmid of *E. coli* O157:H7.

TABLE S2. Characterization of STEC^a O2, O5, O8, O20, O32, O55, O74, O86 and O91 isolated from pork processing.

O Group	O2	O5	O8					O20			O32	O55			O74	O86		O91									
<i>n</i> ^c	1	1	17 (<i>sp</i>)	3	2	1	1	1	6	1	1	1	1	5	1	1	1	1 (<i>p</i>)	1 (<i>p</i>)	11	7 (<i>sp</i>)	1	1	1	1		
within season and plant ^d				+									+														
Shiga toxin ^e	<i>stx1a</i>																									+	
	<i>stx2a</i>																										+
	<i>stx2c</i>																										+
	<i>stx2e</i>	+	+	+	+	+	+	+	+	+	+			+	+	+		+	+	+				+	+	+	
	<i>stx2x</i>																										+
pO157 ^f	<i>hlyA</i>																									+	+
	<i>katP</i>																									+	+
	<i>espP</i>																										+
	<i>etpD</i>																										+
	<i>cnf1/2</i>																										+
	<i>eastA I</i>																										+
	<i>eastA II</i>	+																								+	+
	<i>chuA</i>																										+
<i>iha</i>																										+	+

^aShiga toxin-producing *E. coli* of serogroups indicated, lacking intimin (*eae*) gene.

^bONT = serogroup was not typable using limited antisera sets available.

^cAll isolates recovered from skin of stunned exsanguinated pigs sampled along belly midline, unless indicated by letter(s) in parenthesis: s=skin, p=post-scald pre-evisceration pig carcasses, f=chilled finished pig carcasses.

^dWhen more than one similar strain was identified, “+” indicates whether the strains were all recovered during the same sample collection period and at the same plant.

^eShiga toxin gene subtypes. “*stx2x*” indicates that the *stx2* subtype could not be definitively identified.

^fGenes common to the large virulence plasmid of *E. coli* O157:H7 (*hlyA*, *katP*, *espP*, *etpD*).

TABLE S3. Characterization of STEC^a O103, O110, O112, O139, O141, O146 and O not typable isolated from pork processing

O Group	O103	O110	O112	O139				O141	O146		ONT ^b																
<i>n</i> ^c	1	1	1	8	5	1	1	3	2	1	2	1	8	1	1	1	$\frac{1}{3}$	5	1	2	1	1	1	1	1	1	
within season and plant ^d									+																		
<u>Shiga toxin^e</u>	<i>stx1a</i>		+	+									+	+	+	+	+			+						+	
	<i>stx2a</i>																										
	<i>stx2c</i>																									+	
	<i>stx2e</i>	+			+	+	+	+	+	+	+		+					+	+	+				+	+	+	+
	<i>stx2x</i>											+		+	+								+				
<u>pO157^f</u>	<i>hlyA</i>														+												
	<i>katP</i>		+				+					+	+				+							+	+	+	
	<i>espP</i>																										
	<i>etpD</i>																										+
	<i>cnf1/2</i>																										
	<i>eastA I</i>	+																							+		+
	<i>eastA II</i>	+			+			+			+						+	+	+		+	+	+	+	+		+
<i>chuA</i>						+	+															+		+	+	+	
<i>iha</i>																	+		+	+	+	+		+	+		

^aShiga toxin-producing *E. coli* of serogroups indicated, lacking intimin (*eae*) gene.

^bONT = serogroup was not typable using limited antisera sets available.

^cAll isolates recovered from skin of stunned exsanguinated pigs sampled along belly midline, unless indicated by letter(s) in parenthesis: s=skin, p=post-scaldpre-evisceration pig carcasses, f=chilled finished pig carcasses.

^dWhen more than one similar strain was identified, “+” indicates whether the strains were all recovered during the same sample collection period and at the same plant.

^eShiga toxin gene subtypes. “*stx2x*” indicates that the *stx2* subtype could not be definitively identified.

^fGenes common to the large virulence plasmid of *E. coli* O157:H7 (*hlyA*, *katP*, *espP*, *etpD*).

TABLE S4. Characterization of EHEC O157:H7 isolates^a (continued).

^aIsolates were confirmed to be serotype O157:H7 and all possessed intimin (*eae*) gene subtype gamma.

^bAll isolates recovered from skin of stunned exsanguinated pigs sampled along belly midline, unless indicated by letter(s) in parenthesis: s=skin, p=post-scald pre-evisceration pig carcasses, f=chilled finished pig carcasses.

^cWhen more than one similar strain was identified, “+” indicates whether the strains were all recovered during the same sample collection period and at the same plant.

^dShiga toxin gene subtypes. “*stx_{2x}*” indicates that the *stx₂* subtype could not be definitively identified.

^eNon-locus of enterocyte effacement (LEE) genes located in O-Islands:36, 57, 71, and 122 associated with more severe disease causing EHEC pathoserotypes.

^fGenes common to the large virulence plasmid of *E. coli* O157:H7 (*hlyA*, *katP*, *espP*, *etpD*)

TABLE S5. Characterization of non-O157 EHEC^a isolates

O group		O8	O26		O103		O121					ONT ^b				
<i>n^c</i>		<i>l</i>	<i>l</i>	<i>2(f)</i>	<i>l</i>	<i>l</i>	<i>2</i>	<i>l</i>	<i>l</i>	<i>l</i>	<i>l</i>	<i>l</i>	<i>l(p)</i>	<i>l</i>	<i>l</i>	<i>l</i>
within season and plant ^d				+			+									
Shiga toxin ^e	<i>stx1a</i>	+	+	+			+	+	+		+	+				
	<i>stx2a</i>		+		+	+	+	+	+		+					
	<i>stx2c</i>															+
	<i>stx2e</i>	+					+		+	+	+				+	
intimin ^f	universal gamma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	beta 1		+	+										+	+	
	epsilon				+	+	+	+	+							
nlegenes ^g	<i>nleA</i>		+	+			+	+	+		+	+				+
	<i>nleB</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
	<i>nleC</i>		+		+	+	+	+	+	+	+				+	
	<i>nleD</i>		+				+	+	+	+	+					
	<i>nleE</i>		+	+			+	+	+				+			+
	<i>nleF</i>		+	+	+	+	+	+	+		+	+	+	+	+	+
	<i>nleG</i>		+	+			+	+	+		+	+	+			+
	<i>G2-1</i>		+				+	+	+	+		+				
	<i>G2-3</i>			+								+	+			+
	<i>G5-2</i>		+	+			+	+	+	+		+	+			+
	<i>G6-2</i>		+	+			+	+	+		+	+	+			+
	<i>G9</i>		+				+	+	+		+					+
	<i>nleH1</i>			+										+		
	<i>ent</i>		+	+			+	+	+	+	+	+				
pO157 ^h	<i>hlyA</i>	+	+	+		+	+	+	+	+	+	+	+	+	+	+
	<i>katP</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	<i>espP</i>		+	+			+	+	+		+					
	<i>etpD</i>		+		+	+	+	+	+		+			+		+
	<i>lifA</i>			+												
	<i>cnf 1/2</i>								+	+		+				
	<i>eastA I</i>		+				+	+	+	+						
	<i>eastA II</i>	+	+				+	+	+		+					+
	<i>chuA</i>	+	+				+	+	+	+	+			+		
	<i>iha</i>	+	+	+	+	+	+	+	+		+					+

TABLE S5. Characterization of non-O157 EHEC^a isolates (continued).

^aEHEC are enterohemorrhagic *E. coli* possessing Shiga toxin (*stx*) and intimin (*eae*) genes belonging to the O-serogroup indicated.

^bONT=serogroup was not typable using limited antisera sets available

^cAll isolates recovered from skin of stunned exsanguinated pigs sampled along belly midline, unless indicated by letter(s) in parenthesis: s=skin, p= post-scald pre-evisceration pig carcasses, f=chilled finished pig carcasses.

^dWhen more than one similar strain was identified, “+” indicates whether the strains were all recovered during the same sample collection period and at the same plant.

^eShiga toxin gene subtypes. “*stx*_{2x}” indicates that the *stx*₂ subtype could not be definitively identified.

^fIntimin (*eae*) genes were determined to be present in each isolate using universal oligonucleotide primers. Then only specific subtypes gamma, beta 1 or epsilon were identified. Some isolates possess a non-identified subtype.

^gNon-locus of enterocyte effacement (LEE) genes located in O-Islands:36, 57, 71, and 122 associated with more severe disease causing EHEC pathoserotypes.

^hGenes common to the large virulence plasmid of *E. coli* O157:H7 (*hlyA*, *katP*, *espP*, *etpD*)