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ISDS 2016 Conference Abstracts

ISDS INTERNATIONAL SOCIETY FOR DISEASE SURVEILLANCE

First detection of *Salmonella* spp. in backyard production farms from central Chile

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Objective

The purpose of this study was to detect the presence of circulating *Salmonella* spp. on backyard production systems (BPS) with poultry or swine breeding in central Chile

Introduction

Characteristics and conditions of backyard production systems (BPS) transform them into potential maintainers of priority zoonotic agents, like *Salmonella* spp., highly important agent because of its impact in animal and public health (1).

Methods

A stratified and proportional random sampling approach was performed (2), based on 15 provinces from the study area (regions of Valparaiso, Metropolitana and LGB O'Higgins). 329 BPS sampled (equivalent to 1,744 samples). Stool content inoculated in test tubes with peptone water (APT, Difco®) supplemented with Novobiocin (Sigma®), incubated for 18 to 24 hours at 37° C. Subcultured on modify semisolid Rappaport Vassiliadis (MSRV, Oxoid®) agar supplemented with Novobiocin, incubated for 24 to 48 hours at 41.5° C. Samples compatible with growth and/or diffusion were sub-cultured by exhaustion on Xylose Lysine Deoxychocolate (XLD, Difco®) agar and then incubated for 24 hours at 37° C (3). Confirmation made by conventional PCR for *invA* genes (4). Serotypes were predicted using a combination of PCR and sequencing, aimed directly at genes coding for O, H1 and H2 antigens (5).

Results

1,744 samples were collected belonging to the 329 BPS. 15 positive BPS (4.6%) detected. Serotypes detected correspond to *Salmonella* Typhimurium (21.7%), followed by *Salmonella* Enteritidis (13.0%) and *Salmonella* Infantis (13.0%), *Salmonella* Hadar or Istanbul (8.7%), *Salmonella* [z42] or Tenessee (4.4%), *Salmonella* Kentucky (4.4) and unknown (34.8%) (Table 1).

Conclusions

This is the first evidence of serotypes of *Salmonella* spp. circulating at a regional level in BPS from central Chile. A relevant pathogen for public health.

Table 1. Characterization of Salmonella spp. circulating in BPS from central Chile

BPS	Serogroup	H1	H2	*invA gen*	Predicted serotype(s)
CACH032-3	D	+	-	+	Enteritidis
CACH032-4	D	+	-	+	Enteritidis
CC045-Swine	??	+	-	+	[z42] or Tennessee
CHA004-3	C1	+	+	+	Infantis
CHA004-4	C1	+	+	+	??
COL001-5	D	+	-	+	Enteritidis
COL033-ENV	B	+	+	+	??
COL033-Duck 3	B	+	+	+	Typhimurium (O5-)
ME006-4	??	+	-	+	??
ME010-3	B	+	-	+	??
ME014-3	B	+	+	+	Kentucky
ME015-2	??	+	-	+	??
SF017-5	C2-C3	+	-	+	Hadar or Istanbul
SF017-ENV	C2-C3	+	+	+	Hadar or Istanbul
SF020-1	??	+	+	+	??
SF020-2	B	+	+	+	Typhimurium
SF020-3	D	+	-	+	potential monophasic variant of Typhimurium
SF020-Duck	D	+	-	+	potential monophasic variant of Typhimurium
SF020-Duck 2	B	+	+	+	Typhimurium
SF020-Swine	B	+	-	+	??
YA001-2	??	+	+	+	??
YA001-3	??	+	+	+	Infantis
YA038-2	C2-C3	+	+	+	Infantis

?? = unkonwn

Keywords

Salmonella spp.; backyard production systems; one health; backyard surveillance

Acknowledgments

Founded by FONDECYT 11121389 to CHW and CONICYT 21130159 to RA-M.

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