

Outbreak of a new serotype *Salmonella enterica* subsp. *enterica*, with antigenic formula 11:z₄₁: e,n,z₁₅ in Greece : 2016-2017

An investigation of the Hellenic Centre of Disease Control and Prevention & the National Reference Centre for *Salmonella* and *Shigella* (Ministry of Health)



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Veterinary Laboratory of Chalkis.

Zaandam, the Netherlands – 29/05/2017

A Public Health Issue

- March 2016 – March 2017
- 4 MS reported 40 cases of a new *Salmonella* serotype 11:z₄₁: e,n,z₁₅ .
- **Not** described in the White-Kauffmann-Le Minor-scheme
- RAPID RISK ASSESSMENT by ECDC (20.03.2017)
- PFGE – WGS confirmed genetic closeness



RAPID RISK ASSESSMENT

Cluster of new *Salmonella* serotype cases with antigenic formula 11:z₄₁:enz₁₅ in four EU Member States

CONFIDENTIAL
17 March 2017

RAPID COMMUNICATIONS

An outbreak of a possibly new *Salmonella enterica* subspecies *enterica* serovar with the antigenic formula 11:z41:e,n,z15, Greece, March to May 2016: preliminary results

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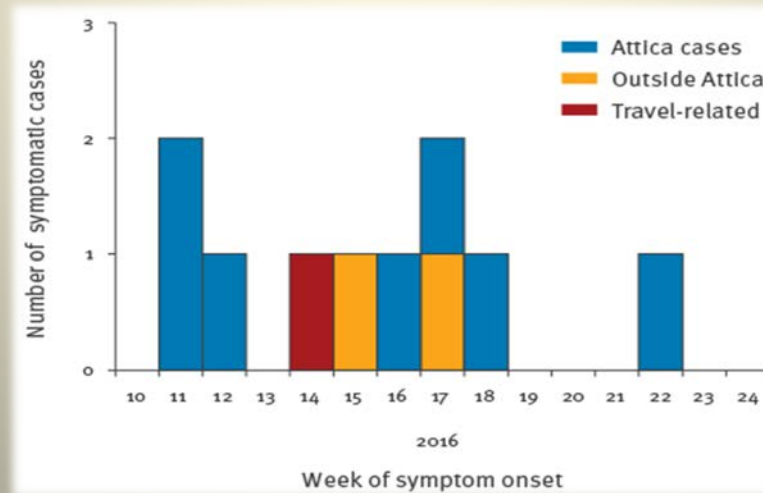
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Eurosurveillance, 2016 June 23; 21 (25)

Short History of the Greek situation (I)

March – May 2016 (reported 10/05/2016)

- 11 *Salmonella enterica* subsp. *enterica* isolates (malonate - , dulcitol +) 11:z₄₁: e,n,z₁₅
 - 10 diarrhoic GR-patients (8 children < 3 years, 2 adults: 1 traveler)
 - 1 asymptomatic case (@routine check)
- Isolates susceptible to 16 Antimicrobial agents (3rd gen. cephalosporins / fluoroquinolones) - Disk diffusion method – EUCAST breakpoints
- Not identified in animals, neither animal products nor food products (Veterinary National Reference Laboratory for *Salmonella*)



Short History of the Greek situation II

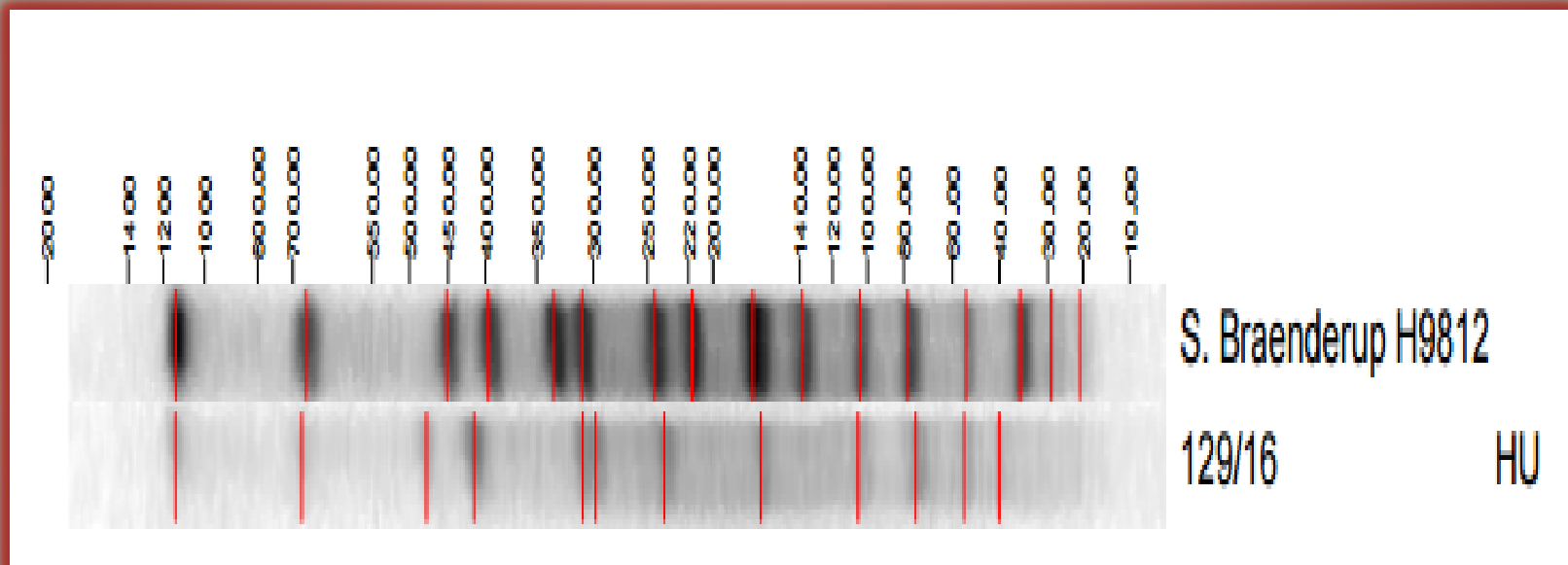
Laboratory confirmed cases' investigation

- Std. questionnaire for Salmonellosis cases – no apparent epidemiological link
- Cases geographically scattered , non travellers, no pets-reptiles assoc., no common activities
- At that time: Food, as possible source of infection: \emptyset
- Case-case study design: 22 *S. Enteritidis* cases (MNS) – 11 sick cases – via a web based questionnaire (matching age group & residency)
- Statistically significant correlation with the consumption of a sesame product (sesame paste “tahini”) / no specific trademark



Activity / Communication of findings I

- TESSy (ECDC) upload of the PFGE profile (PulseNet) : **XbaI.2460**



Eurosurveill. 2016 ; 21 (25): pii=30265

Activity / Communication of findings (II)

- **UI-358** by the EPIS (15 countries replied, negatively): no isolates with a matching PFGE profile (Xbal. 2460)
- Confirmatory Serotyping (3 isolates) : WHO Coll. Centre for Reference & Research on *Salmonella* - **Inst. Pasteur**: putative new serotype (26-05-2016). Name: ??
- <https://enterobase.warwick.ac.uk> – sequence id code 239-2016
- *Other than:*
 - *S. enterica* subsp. **salamae**, 11:z41;e,n,x (2008-9, reptiles) communication with the NRL-Germany.
 - **S. Maastricht**, 11:z41:1,2 (sesame product “tahini” – 2013 – USA)

Consulting experts

- Germany: Robert Koch Institute, National Reference Centre for *Salmonella*
- Luxembourg: Laboratoire National de Sante
- Czech Republic: National Reference Centre for *Salmonella*, National Institute of Public Health
- Greece: Hellenic Centre for Disease Control and Prevention, National Reference Centre for *Salmonella* and *Shigella*



EU situation – until 03 / 2017

Epidemiological data

- Greece: **22** cases (16 children), 82 % in Attica , 2 cases in 2017.
!! ESBL producing *Salmonella* 11:z₄₁: e,n,z₁₅ (relapse case)
- Germany: **10** cases (4 GR related), last case in Feb. 2017.
*2015-Nigerian sesame seeds, imported via Greece, RASSF portal notif. 2017.0221/22-02-17
- Czech Republic: **5** cases (3 children), last case in June 2016
- Luxembourg: **3** cases (2 asymptomatic), last case in Feb. 2017
- 11 isolates from 4 MS share the PFGE profile
- ❖ Austria, Cyprus, Denmark, Finland, France, Ireland, Italy, the Netherlands, Norway, Scotland, Sweden, Switzerland : reported **0**

Ridom SeqSphere+ MST for 13 Samples based on 2115 columns, no missing values

Distance based on columns from *S. enterica* cgMLST 2143 targets LT2 (2108), *S. enterica* MLST (7)

Comparison Table definition: Ssp.l_11_z41_e,n,z15

Comparison Table created: 21.02.2017 16:02

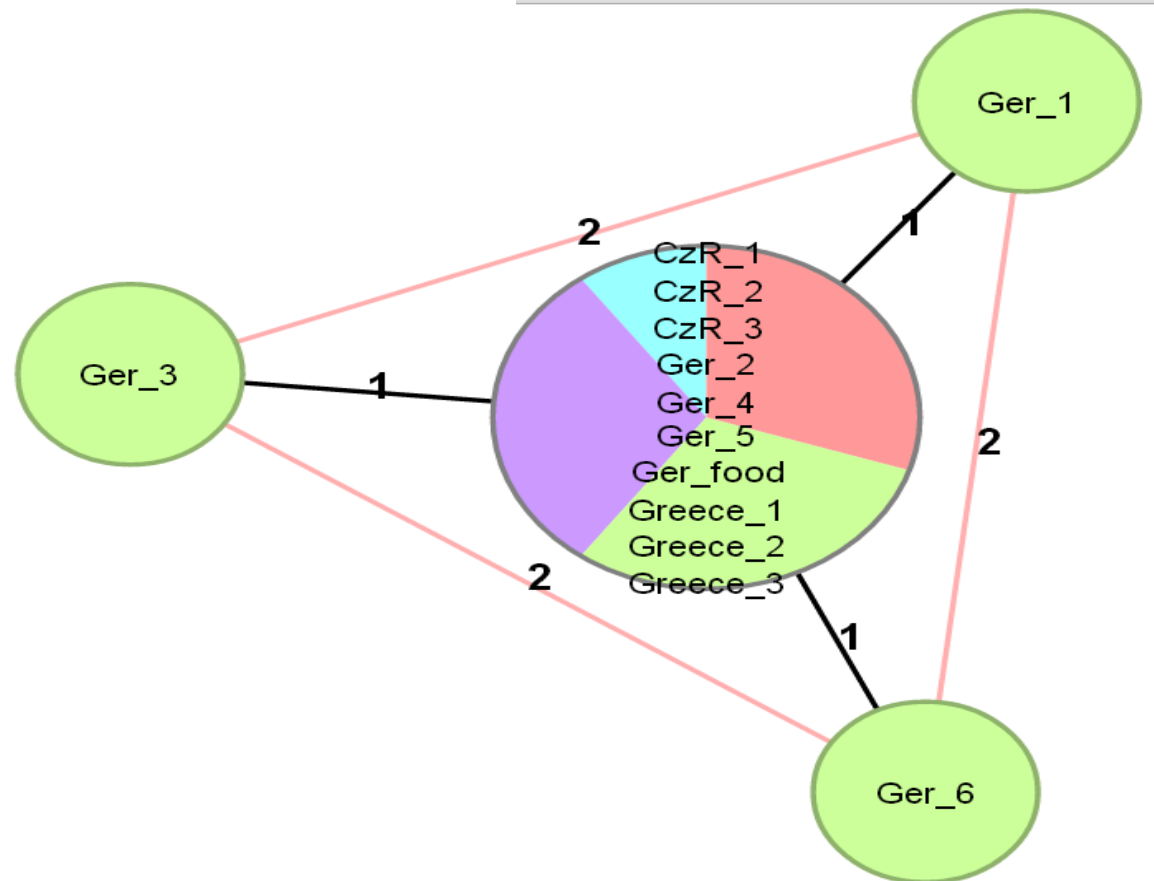
Task Templates: *S. enterica* cgMLST 2143 targets LT2, *S. enterica* MLST, *S. enterica* Accessory 2201 targets LT2

For citing correctly in publications the tools used for this analysis see menu Help | Citations.

Grouped by column "Country of Isolation"

- Czech Republic
- Germany
- Germany_food
- Greece

core genome MLST method



➤ *Figure provided by the Robert Koch Institute*

Recent ECDC public health threat assessment



- Isolates are genetically close
- Isolates associated with a common source of infection (sesame seeds/sesame products)
- *Salmonella enterica* subsp. *enterica* 11:z₄₁: e,n,z₁₅ contaminated imported batches of sesame **circulating** in the EU food chain???



Germany notification on RASSF (alert, 31-03-17) **2017.0408**: 11:z₄₁: e,n,z₁₅ sesame paste (raw material from Sudan)



Notification details - 2017.0408

Salmonella (11:z41:e,n,z15 /25g) in sesame paste from Greece, with raw material from Sudan

Reference	2017.0408	Notification type	food - alert - food poisoning
Notification date	31/03/2017	Action taken	recall from consumers
Last update	17/05/2017	Distribution status	distribution to other member countries
Notification from	Germany (DE)	Product	sesame paste
Classification	alert	Product category	mnts, nut products and seeds
Risk Decision	serious	Published in RASFF Consumers' Portal	has been published before

Follow-up

Reference	Follow-up from	Date	Follow-up type	Info
fiup1	Germany	03/04/2017	outcome of investigations	
fiup2	Switzerland	04/04/2017	outcome of investigations and measures taken	
fiup3	Commission Services	04/04/2017	translation	
fiup5	Belgium	06/04/2017	outcome of investigations and measures taken	
fiup6	Portugal	07/04/2017	outcome of investigations and measures taken	
fiup7	Austria	10/04/2017	outcome of investigations and measures taken	
fiup8	Commission Services	12/04/2017	request	
fiup9	Greece	12/04/2017	outcome of investigations	
fiup10	Estonia	19/04/2017	outcome of investigations and measures taken	
fiup11	Estonia	24/04/2017	measures taken	
fiup12	France	25/04/2017	outcome of investigations and measures taken	
fiup13	Commission Services	26/04/2017	request	
fiup14	Luxembourg	27/04/2017	measures taken	
fiup15	Greece	09/05/2017	outcome of investigations and measures taken	
fiup16	Germany	16/05/2017	additional information	
fiup17	Commission Services	16/05/2017	translation	

Hazards

Substance / Hazard	Category	Analytical result	Units	Sampling date
Salmonella	pathogenic micro-organisms	11 z41 e,n,z15	/25g	21/03/2017

— Countries/organisations concerned (D = distribution, O = origin)



GERMANY

S. enterica subsp. *enterica* 11:z₄₁:e,n,z₁₅

Notification details - 2017.APM

Salmonella enterica ser. Maastricht (presence /25g) in sesame seeds from Sudan

Reference	2017.APM	Notification type	food - border rejection - border control - consignment detained
Notification date	06/04/2017	Action taken	re-dispatch
Last update	07/04/2017	Distribution status	product not (yet) placed on the market
Notification from	Greece (GR)	Product	sesame seeds
Classification	border rejection	Product category	nuts, nut products and seeds
Risk Decision	serious	Published in RASFF Consumers' Portal	has never been published

Follow-up

Reference	Follow-up from	Date	Follow-up type	Info

Hazards

Substance / Hazard	Category	Analytical result	Units	Sampling date
Salmonella enterica ser. Maastricht	pathogenic micro-organisms	presence	/25g	21/11/2016

Countries/organisations concerned (D = distribution, O = origin)

Greece | Sudan (O)



GREECE
S. Maastricht

CONCLUSIONS

- High percentages of «non-compliant sesame consignments imported from 3rd countries»
- Regulation (EC) No 669/2009

COMMISSION IMPLEMENTING REGULATION (EU) 2016/2107 of 1 December 2016 amending **Annex I** to Regulation (EC) No 669/2009 , as regards the list of feed and food of non-animal origin subject to an increased level of official controls on imports

- Occurrence of new cases

Salmonella enterica subsp. *enterica* 11:z₄₁: e,n,z₁₅ ?? Other MS ??



Acknowledgements , for the provision of data, to:

- Dr. K. Mellou (Hellenic Centre of Disease Control and Prevention)
- Dr. G. Mandilara (National Reference Centre for Salmonella and Shigella)
and

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... thank you for your attention !