PREGLED DOSADAŠNJIH I BUDUĆIH AKTIVNOSTI NRL-a CPS

Radionica RH NRL-a za

E. coli, Campylobacter, Salmonella, Listeria monocytogenes i Koagulaza pozitivne stafilokoke

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EURL
NRL

European Union Reference Laboratory for Coagulase Positive Staphylococci (EURL) – sukladno Uredbi (EU) 2017/625

French agency for food, environmental and occupational health safety,

ANSES - Laboratory for Food Safety

Nacionalni referentni laboratorij (NRL)
Hrvatski veterinarski institut, Laboratorij za mikrobiologiju hrane
Hrvatski zavod za javno zdravstvo, Odsjek za mikrobiologiju namirnica i POU

Trenutni propisi i zahtjevi (EURL)

Uredba (EZ) br. 2073/2005 od 15. studenoga 2005. o mikrobiološkim kriterijima za hranu (s iz

- Kriteriji higijene procesa
- Kriteriji sigurnosti

CPS (koagulaza-pozitivni stafilokoki) – kriterij higijene procesa u mlijeku i mliječnim proizvodima, oljuštenim, kuhanim rakovima i školjkama
Stafilokokni enterotoksini – kriterij sigurnosti u mlijeku i mliječnim proizvodima.

Metode detekcije i brojanja

Brojanje CPS: HRN EN ISO 6888-1/-2/-3

- HRN EN ISO 6888-1/-2 Horizontalna metoda određivanja broja koagulaza-pozitivnih stafilokoka (Staphylococcus aureus i ostale vrste) - 1. dio: Postupak primjene Baird-Parker agara / - 2. dio: Postupak primjene agara s fibrinogenom plazme kunića
- HRN EN ISO 6888-3 – Horizontalna metoda za brojenje koagulaza-pozitivnih stafilokoka (Staphylococcus aureus i drugi sojevi) -- 3. dio: Izolacija i MPN postupak za male brojeve

Detekcija stafilokoknih enterotoksina tipa SEA do SEE (do danas poznato više od 20 stafilokoknih enterotoksina) :

- HRN EN ISO 19020:2017 Horizontalna metoda za imunoenzimsko dokazivanje prisutnosti stafilokoknih enterotoksina u hrani !!!!

!!!!

anses

EURL CPS
European Union Reference Laboratory for Coagulase Positive Staphylococci

Laboratory of food safety

SBCL Unit,
Staphylococcus team

Circular letter addressed to:
• the Heads of the National Reference Laboratories of the European Union for Coagulase Positive Staphylococci;

Maisons-Alfort, 26th September 2025

File followed by:
Yacine NIA
Isabelle MUTEL

Direct line:
+33 1 49 77 27 56

E- mail address:
eurl-staphylococci@anses.fr

Ref.:
CPS-Cr-202512L

Subject: Temporary Exemption from the VIDAS SET2 Kit Instructions for Use – Freezing of Sample Extracts

Dear colleagues,

As part of its annual European-wide Proficiency Testing (PT) program for National Reference Laboratories (NRLs), the EURL for CPS ensures compliance with regulatory standards for the detection of staphylococcal enterotoxins. In accordance with the EN ISO 19020 standard, the use of commercial kits VIDAS® SET2 (bioMérieux) and RIDASCREEN® SET Total (R-Biopharm) is mandated.
During the implementation assessments of this standard by NRLs using the VIDAS® SET2 kit, a discrepancy was identified between the sample extract storage recommendations outlined in EN ISO 19020 (§8.6) and those specified in the technical instructions provided by bioMérieux.
To address this issue, the EURL for CPS participated in two complementary studies evaluating the stability of staphylococcal enterotoxins types SEA to SEE in food extracts stored at –20°C ± 5°C:

- A preliminary study conducted in collaboration with the Irish NRL.
- A comprehensive study carried out in partnership with bioMérieux.

The results confirmed the stability of the five enterotoxins (SEA to SEE) in extracts from five food matrix categories (milk and dairy products, meat products, fish products, ready-to-eat meals and desserts) after 45 days of freezing. An extended study up to 180 days is currently underway.

anses

Based on these findings, bioMérieux is considering revising the technical instructions of the VIDAS® SET2 kit to authorize extract freezing and enable delayed analysis starting in 2026.

Temporary Exemption Granted
As an exceptional measure, the EURL for CPS hereby authorizes NRLs to deviate from the current instructions of the VIDAS® SET2 kit and freeze sample extracts for up to **45 days post-extraction**. This exemption is also applicable to the Proficiency Testing exercise scheduled for March 2026.
This temporary exemption granted is validated until the publication of the new version of technical instructions by bioMérieux

For further information, please contact: eurl-staphylococci@anses.fr

Yacine NIA
EURL for CPS Manager deputy

Izvještaj EFSA-e i ECDC-a o zoonozama za 2023. godinu

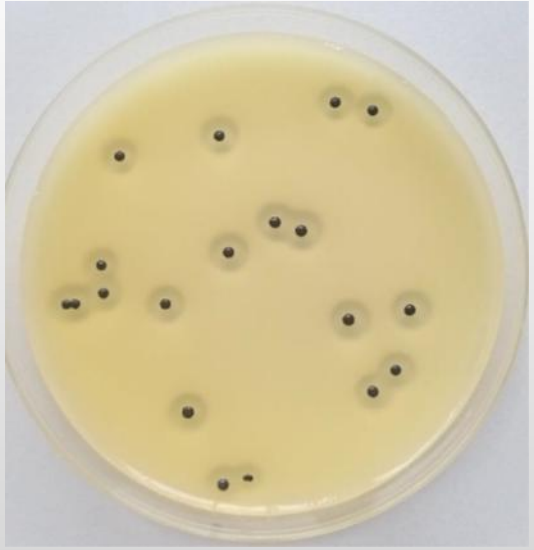
Pet država članica (Hrvatska, Njemačka, Grčka, Italija i Španjolska) dostavile su podatke o prisutnosti ***Staphylococcus* spp.** u hrani.

Analizirano: **6700 uzoraka hrane**

Pozitivni nalazi: **5,4%**

Najčešće pozitivne kategorije hrane:

- sirovo mlijeko
- ostali prerađeni proizvodi i pripremljena jela
- mesni proizvodi spremni za konzumaciju
- različite vrste sireva (svježi, tvrdi, meki, polutvrdi)
- maslac



Izvještaj EFSA-e i ECDC-a o zoonozama za 2023. godinu

STAFILOKOKNI ENTEROTOKSINI

- **U skladu s Uredbom (EZ) br. 2073/2005**
- Sedam država (Bugarska, Grčka, Italija, Rumunjska, Slovenija, Slovačka i Španjolska) prijavilo je podatke o enterotoksinima
- Distribucijska razina
  Pozitivno: 5/2557 uzoraka (0,2%) – svi u Španjolskoj
  Pozitivna kategorija: tvrdi sirevi od ovčjeg mlijeka
- Proizvodna razina
  Pozitivno: 8/1076 uzoraka (0,7%) – u Italiji i Rumunjskoj
  Pozitivne kategorije: meki i polutvrdi sirevi od kravljeg mlijeka, sirevi od miješanog mlijeka (krava, ovca, koza)
- **Podaci izvan okvira Uredbe (EZ) br. 2073/2005**
- Dvanaest država članica prijavilo je dodatne rezultate
  Pozitivno: 20/ 5316 (0,38%)
  Pozitivne kategorije: ostali prerađeni proizvodi i gotova jela

SFPO – Interlaboratory study on the Staphylococcal Food Poisoning Outbreak Investigaion (svibanj, 2024.)

- Uredba EZ 2073/2005 definira SE kriterij **samo za sir i mliječne proizvode**.
- **EFSA podaci**: rizik postoji i u **miješanoj hrani i mesnim proizvodima**

Godišnja radionica 2022.:

- NRL-ovi traže **vježbu za testiranje sposobnosti istraživanja epidemija**

Radni program 2023./2024.:

- NRL-ovi traže izazovnije vrste matriksa s kojima se mogu susresti tijekom rutinskih analiza SFPO-a u njihovim laboratorijima
- Pripremljen scenarij epidemije uzrokovane kontaminacijom hrane stafilokoknim enterotoksinima i poslan sudionicima zajedno s uzorcima.
- Scenarij kreiran uzimajući u obzir različite kontaminante (**CPS i enterotoksine**) i različite matrikse

2.1 SFPO SCENARIO

The EURL for CPS has prepared the following scenario and sent it to participants with samples :

Letter addressed to: National Reference Laboratory for CPS
Maisons-Alfort, 23th of April 2024.

During the Paris 2024 Olympic Games, three restaurants located in an Olympic village serves 500 meals for spectators during lunch. Spectators enjoyed this event until 22nd of April where a large food poisoning outbreak was declared. The competent authority decided to send some samples to the national reference laboratory for analysis and explained the situation in the email below:

"Dear NRL Colleague,

The manager of the Olympic village alerted the competent authority as well as the emergency services after the appearance of symptoms of a gastric epidemic on 22nd of April 2024.
First investigation showed that 80 people present symptoms of vomiting with abdominal pain and diarrhea. 5 children and 2 elderly people were hospitalized. Symptoms appeared between 1 and 3 hours after having lunch in the restaurant "La Belle Etoile".

The next step of the investigation showed that this restaurant has received 100 people including the 80 sick people. Over the 80 ills, 47 consumed only Apple juice, Cheese with bread and mousse of chocolate, and 33 took Paella and mousse of chocolate and water. No information was available on the meal consumed by the 20 people who are not sick.
Responsible of the restaurant explained that the cheese was purchased recently from a local producer. However, paella and mousse of chocolate were prepared in the restaurant by two different persons.

Symptoms and time of onset suggest that staphylococcal enterotoxins may be responsible of this food borne outbreak. Thus, we decided to send to your NRL 4 samples for analysis. 30 mL of apple juice, 50 g of cheese, 50 g of paella and 50 g of mousse of chocolate were sampled and sent to your laboratory in refrigerated conditions.

Results expected from your NRL should help the competent authority to elucidate the source of the food borne outbreak.

End of the letter sent to participants"

consumed by 47 people

Menu 1

- ✓ Apple juice,
- ✓ Cheese with bread
- ✓ Mousse of chocolate,

consumed by 33 people

Menu 2

- ✓ Water
- ✓ Paella
- ✓ Mousse of chocolate

Figure 1. menu consumed by people having symptoms

SFPO – Interlaboratory study on the Staphylococcal Food Poisoning Outbreak Investigaion

- Izazov oko izbora metode, kvalitete podataka, učinkovitosti odabranih metoda te sposobnosti identificiranja izvora trovanja
- Broj laboratorija koji su sudjelovali: 17
- Matriks (50g): Sok od jabuke
  Paella
  Sir
  Čokoladni mousse
- Primjenjene metode: Određivanje broja koagulaza pozitivnih stafilokoka (HRN EN ISO 6888-1:2021)
  Dokaz stafilokoknog enterotoksina imunoenzimatskom metodom (ISO 19020:2017)
  WGS
- Očekivani rezultati:

Table 1. Codification and expected results

Codification	Matrix	CPS enumeration (cfu/ml or cfu/g)	SE detection (EN ISO 19020)	In-house ELISA method	CPS species	*se* genes
M1	Apple Juice	Not contaminated	Not detected	Not detected	/	/
M2	Paëlla	10^5 to 10^8	Detected	Detected: SEA	*S.aureus*	*nuc, sea, sex*
M3	Cheese	Not contaminated	Detected	Detected: SED	*S.aureus*	
M4	Chocolate mousse	10^5 to 10^8	Not detected	Not detected	/	*nuc, selW*

Table 5. Results obtained by participants for the matrix M1 (Apple juice)

Lab code	CPS Enumeration (cfu/ml)	SE detection (EN ISO 19020)	In-house ELISA method	CPS species	*se* genes	Typing MLST
Expected results	CPS not enumerated	Not detected	Not detected	Not detected	Not detected	/
16	< 10	Not detected	/	/	/	/

Table 6. Results obtained by the participants for the matrix M2 (Paëlla)

Lab code	CPS Enumeration (cfu/g)	SE detection (EN ISO 19020)	In-house ELISA method	CPS species	*se* genes	Typing MLST
Expected results	10^4 to 10^8	detected	SEA	*S. aureus*	*nuc, sea, sex*	/
16	$1.5x10^7$	Detected	/	*S.aureus* ssp *aureus*	/	/

Table 7. Results obtained by the participants for the matrix M3 (Cheese)

Lab code	CPS Enumeration (cfu/g)	SE detection (EN ISO 19020)	In-house ELISA method	CPS species	*se* genes	Typing MLST
Expected results	CPS not enumerated	Detected	SED	Not detected	Not detected	/
16	< 10	Detected	/	/	/	/

Table 8. Results obtained by participants for the matrix M4 (Chocolate mousse)

Lab code	CPS Enumeration (cfu/g)	SE detection (EN ISO 19020)	In-house ELISA method	CPS species	*se* genes	Typing MLST
Expected results	10^4 to 10^8	Not detected	/	*S. aureus*	*nuc, selW*	/
16	$3.0x10^7$	Not detected	/	*S.aureus* ssp *aureus*	/	/

Uspješno provedeno!

PT CPS
(lipanj, 2024.)

- Broj laboratorija koji su sudjelovali: 34
- Matriks (23g): Kozice
- Primjenjene metode: HRN EN ISO 6888-1 i/ili HRN EN ISO 6888-2

Table 1. Test portion description

Level	Targeted contamination (CFU.g^{-1})	Test portion / lab	Test portion (g)	Effective contamination achieved (CFU.g^{-1})
Negative (blank)	<10; <100	1	23	<10
1	$1,0 \times 10^3$ - $1,2 \times 10^4$	1	23	$1,3 \times 10^4$
2	$1,0 \times 10^5$ - $1,2 \times 10^6$	1	23	$9,1 \times 10^5$

Uspješno provedeno!

- **PT CPS 2025. u tijeku**

APPENDIX 4. Results obtained by EN ISO 6888 -1

Lab Code	Blank samples		Level 1		Level 2	
	Sample Code	CFU/g	Sample Code	Log$_{10}$ (CFU/g)	Sample Code	Log$_{10}$ (CFU/g)
1	179	< 10	85	4,255272505	159	6
3	144	< 10	64	4,301029996	105	6,255272505
6	157	<10	1	4,491361694	82	6,230448921
7	163	< 10	137	4,278753601	46	6,176091259
10	171	< 10	103	4,301029996	67	6,113943352
13	8	< 10	125	3,929418926	95	5,924279286
16	2	< 100	104	4,230448921	10	6,230448921
17	78	< 100	109	4,176091259	98	6,204119983
20	55	< 100	84	4,230448921	52	6,278753601
23	175	< 10	180	4,556302501	154	6,556302501
24	158	< 10	106	4,397940009	18	6,414973348
25	122	< 10	114	3,792391689	187	5,113943352
26	13	< 10	162	4,176091259	75	6,079181246
33	72	< 100	99	4,72427587	102	7,193124598
34	54	< 100	152	4,204119983	24	6,662757832

APPENDIX 5. Results obtained by EN ISO 6888 -2

Lab Code	Blank samples		Level 1		Level 2	
	Sample Code	CFU/g	Sample Code	Log$_{10}$ (CFU/g)	Sample Code	Log$_{10}$ (CFU/g)
1	179	<10	85	4,301029996	159	5,982271233
2	30	<10	169	4,301029996	74	6,230448921
3	144	<10	64	4,361727836	105	6,322219295
4	83	<10	174	4,255272505	51	6,176091259
5	21	<10	94	4,204119983	86	6,120573931
7	163	<10	137	4,361727836	46	6,2[illegible]10983
8	141	0	133	4,301029996	57	6,2552[illegible]
9	173	<10	34	4,431363764	131	4,477121255
11	160	<10	178	4,255272505	138	6,146128036
12	25	<10	56	4,342422681	185	6,278753601
14	50	<10	12	4,176091259	26	6,041392685
15	7	<10	113	4,397940009	87	5,913813852
16	2	<10	104	4,361727836	10	6,380211242
18	110	<10	70	4,079181246	153	5,977723605
19	166	<10	60	4,672097858	89	6,477121255
21	16	<10	32	4,278753601	29	6,176091259
22	79	<10	183	4,301029996	93	6,255272505
24	158	<10	106	4,301029996	18	6,301029996
28	132	<10	19	4,204119983	22	6,176091259
29	24	<10	41	4,161368002	76	6,230448921
30	88	<10	5	4,278753601	11	6,041392685
31	142	<10	130	4,113943352	31	> 5,477712125
32	184	<10	23	5,176091259	146	6,176091259
35	33	<10	121	4,322219295	128	6,204119983

ILPT REPORT # Anses_LSAI_24_01_EURL_CPS_enumeration

Appendix 6. Individual z'-score for level 1 and z-score for level 2, by participants

Lab code	LEVEL-1/6888-1	LEVEL-1/6888-2	LEVEL-2/6888-1	LEVEL-2/6888-2
Lab_1	-0,3	0,0	-1,0	-1,1
Lab_2		0,0		0,4
Lab_3	0,0	0,5	0,5	0,9
Lab_4		-0,3		0,0
Lab_5		-0,7		-0,3
Lab_6	1,4		0,4	
Lab_7	-0,2	0,5	0,0	0,2
Lab_8		0,0		0,5
Lab_9		1,0		-9,8
Lab_10	0,0		-0,3	
Lab_11		-0,3		-0,1
Lab_12		0,3		0,6
Lab_13	-2,8		-1,4	
Lab_14		-0,9		-0,7
Lab_15		0,7		-1,5
Lab_16	-0,5	0,5	0,4	1,2
Lab_17	-0,9		0,2	
Lab_18		-1,6		-1,1
Lab_19		2,8		1,8
Lab_20	-0,5		0,6	
Lab_21		-0,2		0,0
Lab_22		0,0		0,5
Lab_23	1,9		2,2	
Lab_24	0,7	0,0	1,4	0,8
Lab_25	-3,8		-6,1	
Lab_26	-0,9		-0,5	
Lab_28		-0,7		0,0
Lab_29		-1,0		0,4
Lab_30		-0,2		-0,7
Lab_31		-1,4		
Lab_32		6,5		0,0
Lab_33	3,2		2,9	
Lab_34	-0,7		-1,2	
Lab_35		0,2		0,2

End of the report

PT SA TOX
(travanj, 2025.)

Table 2: Mean values and RSD obtained after homogeneity test using Vidas SET 2 and Ridascreen SET total

Spiking level	Matrix	Vidas SET 2		Ridascreen SET total	
		Mean value (TV)	RSD (%)	Mean value (AU)	RSD (%)
0	Tabbouleh	Not detected	/	Not detected	/
1	Whole milk	0.56	8.8	0.46	14.5
2	Cantal (cheese)	1.41	9.9	0.94	10.0

Table 1 : Codification of samples received and analyzed by participants

Matrices	Tabbouleh	Whole milk	Whole milk	Whole milk	Cantal	Decoy samples	
Contamination levels	0	1	1	1	2		
Number of replicates	1	3	3	3	1		
NRL code						Code	Matrix/level
1	341	27	264	165	320	35	Milk/ level 1
2	102	277	6	100	115	41	Milk / level 1
3	157	220	83	99	214	160	Milk / level 1
4	76	110	111	152	275	190	Milk / level 1
5	296	31	12	7	218	69	Milk / level 1
6	149	119	71	207	241	16	Milk / level 1
7	9	56	44	86	84	216	Milk / level 1
8	196	174	171	252	15	177	Milk / level 1
9	298	227	306	14	74	166	Milk / level 1
10	79	217	108	162	70	276	Milk / level 1
11	24	191	159	139	51	310	Milk / level 1
12	129	199	182	45	43	109	Tabbouleh / level 0
13	67	331	304	273	313	5	Tabbouleh / level 0
14	26	223	113	75	294	94	Tabbouleh / level 0
15	322	224	186	236	34	247	Tabbouleh / level 0
16	292	50	303	20	123	39	Tabbouleh / level 0
17	61	309	48*	187	8	259	Tabbouleh / level 0
18	150	29	210	77	154	238	Tabbouleh / level 0
19	151	95	147	104	167	173	Tabbouleh / level 0
20	185	125	328	3	97	38	Tabbouleh / level 0
21	73	251	230	36	135	137	Tabbouleh / level 0
22	293	280	286	197	66	170	Cheese / level 2
23	311	266	2	317	141	288	Cheese / level 2
24	232	90	47	333	124	58	Cheese / level 2
25	300	332	106	326	316	270	Cheese / level 2
26	260	81	103	49	112	146	Cheese / level 2
27	21	302	284	180	228	145	Cheese / level 2
28	202	291	87	305	172	203	Cheese / level 2
29	37	338	299	222	336	158	Cheese / level 2
30	92	40	278	140	258	237	Cheese / level 2
31	148	105	321	318	168	343	Cheese / level 2
32	281	1	17	42	19	96	Cheese / level 2

- Broj laboratorija koji su sudjelovali: 32
- Matriks: CANTAL SIR
  SALATA
  MLIJEKO
- Primjenjene metode: Dokaz stafilokoknog enterotoksina imunoenzimatskom metodom (ISO 19020:2017)

➢ **Results lab 01**

Detection by Vidas SET 2 kit: 1010654530

Matrix	Sample number	Intermediate value	Positive threshold	Result	Conclusion	Deviation
Tabbouleh level 0	341	0.00	0.13	Not detected	Satisfactory	No
Milk level 1	27	0.28	0.13	Detected	Satisfactory	No
	264	0.30	0.13	Detected	Satisfactory	No
	165	0.30	0.13	Detected	Satisfactory	No
Cheese level 2	320	1.02	0.13	Detected	Satisfactory	No

Specificity: 100%, sensitivity: 100%, accuracy: 100%

Results of the Lab 01 for the ILPT are satisfactory.

Uspješno provedeno!

19. radionica EURL/NRL-ova za CPS –ANSES-Laboratorij za sigurnost hrane (01. i 02. travnja, 2025.)

- **PT organizacija**:

  CPS: 2025. i 2027.

  SE-ovi: 2025., 2026. i 2027.

  SFPO vježba: 2026.

- **Smjernice i SOP-ovi**
  Guidance document on the characterization of samples issued from a suspected Staphylococcal Food Poisoning Outbreak (SFPO)- DRAFT

- **Analitički razvoj**
  LC-MS/MS metoda za detekciju SE-ova u hrani
  Metode karakterizacije i tipizacije CPS-a
  Razvoj SEs CRM-a **Development of SEs CRM as the SEA one is almost sold out !**

19. radionica EURL/NRL-ova za CPS –ANSES-Laboratorij za sigurnost hrane (01. i 02. travnja, 2025.)

EURL CPS kvartalno objavljuje Newslwtter

Food vehicle	
Category	**Subcategory**
Milk and milk products	Cheese
	Milk
	Dairy products (other than cheeses)
Meat and meat products (and their products)	Poultry meat
	Meat and meat products, unspecified
	Pigmeat
	Bovine meat
	Sheep meat
	Other or mixed red meat and their products
Fish and fishery products	Crustaceans, shellfish, molluscs and their products
	Fish and fishery products
Mixed food	Mixed food
Buffet meals	Buffet meals
Bakery products	Bakery products
Eggs and egg products	Eggs and egg products
Food of non-animal origin	Confections
	Fruits (and juices)
	Herbs and spices
	Vegetables (and juices)
Other foods	Canned food products
	Cereal products and legumes
	Other foods/Unspecified

Type of setting	
Category	**Subcategory**
Household	Household
Restaurant, pub, street vendors, take away	Restaurant or Cafe or Pub or Bar or Hotel or Catering service
	Mobile retailer or market/street vendor
	Take-away or fast-food outlet
Canteen or Catering to Workplace, school, hospital	School or kindergarten
	Residential institution (nursing home or prison or boarding school)
	Canteen or workplace catering
	Hospital or medical care facility
Other settings	Others
	Multiple places of exposure in one country
	Camp or picnic
	Farm
	Multiple places of exposure in more than one country
Unknown	Unknown

SFPO information/results	
Country	
Date	
Suspected food	
Context	
Nb of cases	
Symptoms	
Time of onset	
CPS enumeration (EN ISO 6888-2)	
SE detection (EN ISO 19020) SEA to SEE	
***se* genes (Multiplex End Point PCR)** *11 genes: sea, to see, seg, seh, sei, sej, sek, sel, sep,*	
Genomic analysis (NAuRA)	
In-house ELISA (EURL CPS methods) SEA, SEB, SEC, SED, SEE, SEH, SEG and SEI	

Review of Staphylococcal Food Poisoning Outbreaks and scientific valorization of EURL for CPS network

Period: January 2024 – April 2024

Number: 9

EURL CPS

European Union Reference Laboratory for Coagulase Positive Staphylococci

http://eurl-staphylococci.anses.fr

Guidance document on the characterization of samples issued from a suspected Staphylococcal Food Poisoning Outbreak (SFPO) *[choice 1]*

Or

Recommendations for characterization of samples issued from a suspected Staphylococcal Food Poisoning Outbreak (SFPO) *[choice 2]*

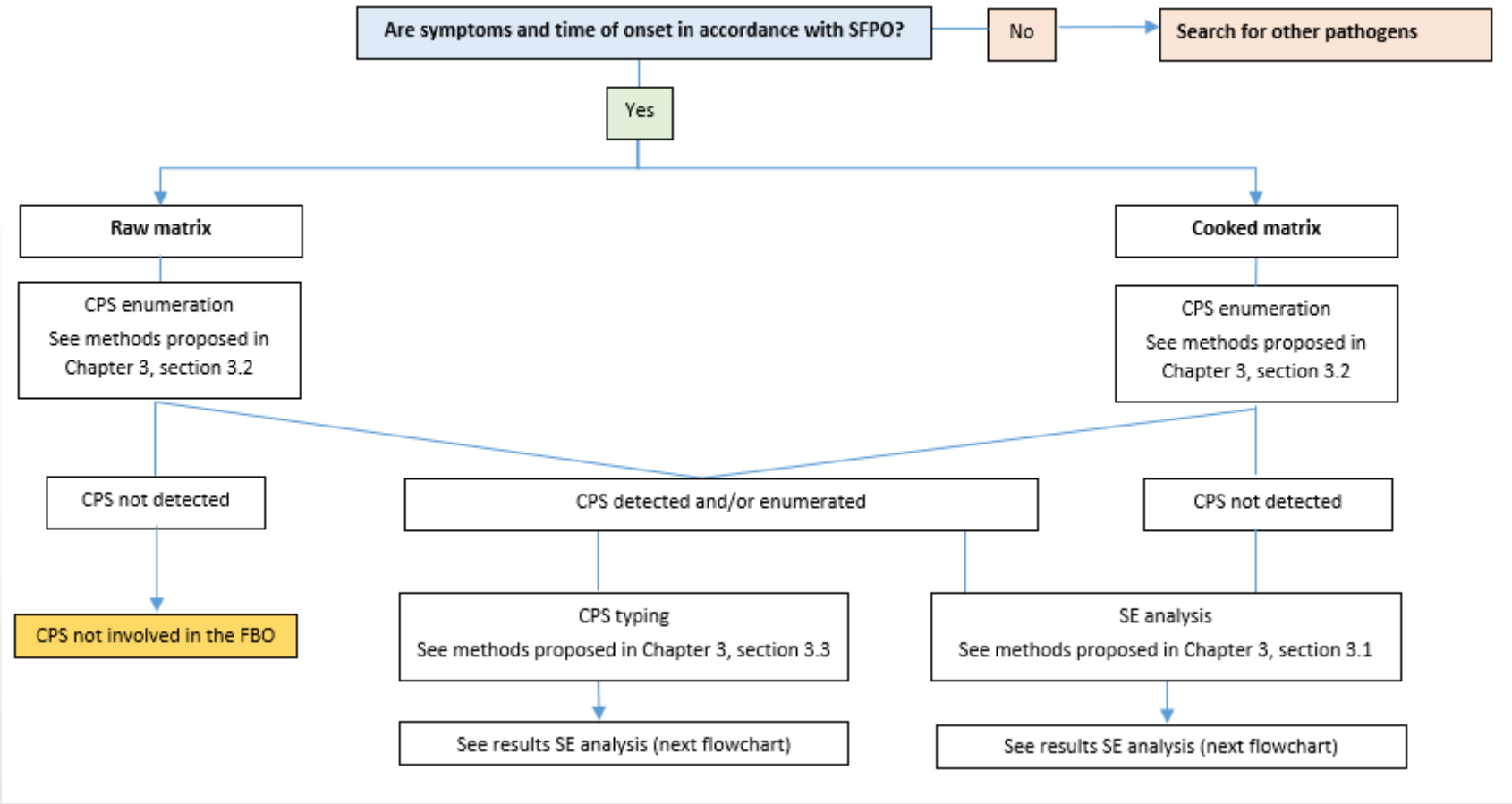
Vodič u izradi, komentari do 31.01.2026., pregled komentara do kraja travnja 2026.

Kontekst i primjena Vodiča

U ovom dokumentu EURL predlaže:

- usklađeni postupak obrade uzoraka (zaprimanje, skladištenje i transport)
- analitički tijek koji treba primijeniti u laboratoriju kako bi se provele relevantne analize i interpretacija rezultata (epidemiološka istraga nije obuhvaćena ovim dokumentom)

Vodič služi kao smjernica NRL-ovima tijekom analize uzoraka povezanih sa stafilokoknim trovanjem hranom (SFPO)



Izvor: Guidance document on the characterization of samples issued from a suspected Staphylococcal Food Poisoning Outbreak (SFPO)

LC-MS/MS metoda za detekciju SE u hrani

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EURL CPS
European Union Reference Laboratory for Coagulase Positive Staphylococci
http://eurl-staphylococci.anses.fr

Detection of SEs by Mass-spectrometry: progress of the validation study

Saïda Belarbi

EURL for CPS workshop

April 1st - 2nd, 2025

LC-MS/MS metoda za detekciju SE u hrani

Validacija LC MS/MS metode za detekciju 8 različitih tipova SE (SEA,SEB, SEC, SED, SEE, SEG, SEH i SEI) za 5 kategorija hrane (mliječni proizvodi, hrana spremna za konzumaciju, meso, riblji proizvodi, deserti)

Tijek pripreme uzoraka

1. Ekstrakcija SE toksina (EN ISO 19020)
2. Pročišćavanje i koncentracija
3. Enzimska digestija
4. LC MS/MS analiza i obrada podataka

Izazov: nedostatak dostupnih standarda i/ili protokola za validaciju metoda za analizu bakterijskih toksina, a posebno stafilokoknih enterotoksina u prehrambenim matriksima !!!!!!

Specifičnost: nema lažno pozitivnih rezultata, pouzdana komplementarna metoda uz ELISA-u

Osjetljivost: učinkovitost detekcije varira ovisno o kombinaciji (toksin/matriks)

ELISA (antigen ⟺ antitijelo)

- ☑ **Prednosti**
- Visoka osjetljivost (LOD = 0,02 do 0,15 ng/g)
- Brza, jednostavna za izvođenje, jeftina
- Kvalitativna i kvantitativna
- ✕ **Ograničenja**
- Troši veliku količinu antitijela
- Mogući lažno pozitivni rezultati

Buduće aktivnosti EURL-a

- Revizija kriterija detekcije (ISO/SC9 WG30)
- Optimizacija pročišćavanja uzoraka radi poboljšanja osjetljivosti (ako je potrebno)
- Studija obnovljivosti s različitim LC MS/MS instrumentima
- Izračun LOD-a za svaki SE toksin

Hvala na pažnji!

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