

Final Report PT-05: Ec 1/2025

PT-05: “Detection of *Echinococcus* sp. worms in the intestinal mucosa of the definitive host”

Design

Purpose	Correctly identify the presence of worms of <i>Echinococcus</i> sp. in a matrix made by intestinal mucosa.	
Scheme type	Single, simultaneous	
Participants	National reference laboratories for parasites. Public and private laboratories	
N. of participants	Depending on request	
Method	Not regulated	
Test method	Sedimentation and counting technique (SCT)	
PT items	Matrix	intestinal mucosa
	Item	worms of <i>Echinococcus</i> spp.
	N. of samples	3 for each participant
	Distribution	Immediate shipment after preparation
Subcontracted activities	NA	
Results evaluation	Qualitative	

Implementation

N. of participants	31	PT items	intestinal mucosa (ml)	1100
Public laboratories	31		Ethanol 70% (ml)	550
Private laboratories	0		PT panel composition	3 samples (25,15,0)
NLR	31		Shipping	DHL
Shipping dates	17/03/2025			

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Results

The final evaluation is only based on qualitative evaluation and is expressed as “positive” if the results of all samples are correct or “negative” if at least one result is incorrect.

Laboratory code	N° of samples correctly identified	N° of samples NOT correctly identified	Final evaluation
EM1	3	0	Positive
EM2	3	0	Positive
EM3	3	0	Positive
EM4	3	0	Positive
EM5	3	0	Positive
EM6	3	0	Positive
EM7	3	0	Positive
EM8	3	0	Positive
EM9	3	0	Positive
EM10	3	0	Positive
EM11	2	1	Negative
EM12	2	1	Negative
EM13	3	0	Positive
EM14	3	0	Positive
EM15	3	0	Positive
EM16	3	0	Positive
EM17	3	0	Positive
EM18	3	0	Positive
EM19	1	2	Negative
EM20	3	0	Positive
EM21	3	0	Positive
EM22	3	0	Positive
EM23	3	0	Positive
EM24	3	0	Positive
EM25	3	0	Positive
EM26	3	0	Positive
EM27	3	0	Positive
EM28	3	0	Positive
EM29	3	0	Positive
EM30	2	1	Negative
EM31	2	1	Negative

Summary of results:

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Number of participant laboratories	31
Number of participants that passed the PT	26
Number of participants that failed the PT	5
Number of participants that repeated the PT	0
Number of participants that successfully repeated the PT	0

Overtime comparison of results

2025 code	Former codes	2020	2021	2022	2023	2024	2025
EM8	1, 12, 18	P	P	P	P	P	P
EM26	2, 19, 20, 50	P	P	N	P	P	P
EM2	27, 29, 3	P	P	P	P	P	P
EM25	4, 28, 30, 48	P	P	P	P	P	P
EM3	5, 14, 7	P	P	P	P	P	P
EM4	6, 11, 8	P	P	P	P	P	P
EM17	7, 9, 36	P	P	P	P	P	P
EM6	8, 23, 24, 13	P	P	N	P	P	P
EM5	9, 10, 12	P	P	P	P	P	P
EM13	10, 3, 20	P	P	P	P	P	P
EM14	11, 25, 26, 32	P	P	N	P	P	P
EM22	12, 22, 23, 42	P	P	P	P	P	P
EM23	13, 8, 43	P	P	P	P	P	P
EM20	14, 2, 40	P	P	P	N	P	P
EM10	15, 5, 23	P	P	P	P	P	P
EM19	16, 18, 19, 39	P	P	P	P	P	N
EM24	17, 24, 25, 44	P	P	N	P	P	P
-	18	P	P				
EM11	19, 17, 26	P	P	N	P	P	N
EM28	20, 15	NR	P	N	P		P
EM18	21, 26, 27, 38	P	P	N	P	P	P
EM21	22, 13, 41	P	P	N	P	P	P
EM12	23, 1, 27	N	P	N	P	P	N
EM7	24, 7, 16	NR	P	P	P	P	P
EM16	25, 21, 22, 34	P	N	N	P	P	P
-	26, 4	N	P	N	P		
EM30	27, 18		P		P		N
EM15	28, 16, 33		P	N	P	P	P
EM27	29, 20, 21, 54		P	N	P	P	P
EM1	30, 6, 1		P	N	P	P	P
EM9	28, 21				P	P	P
EM31	53					P	N
EM29	-						P

Note: P, positive; N, negative; NR, no result received; grey box, no participation

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Comments:

In 2025, 26/31 (83,87%) laboratories successfully accomplished the aim of the PT-05, showing that most of the personnel of NRLs is skilled to detect *Echinococcus* spp. parasites in a qualitative test. In detail, over five (5/31, 16,12%) participants who failed the PT, 3/31 (9,6%) mis-identified the negative item as positive and 3/31 (9,6%) mis-identified the positive item as negative. False negative results might be attributed to incorrect sedimentation procedures and eye focus softening. False positive results might be attributed to the natural presence, in the matrix of intestinal mucosa, of cestodes similar but different from *Echinococcus* spp. (*Amoebotaenia*-like), like it was observed eventually in past PTs. It must be pointed out that when a similar situation occurred in 2022 (presence of *Amoebotaenia*-like worms in the matrix of intestinal mucosa), the 50% of the participating laboratories failed the PT because of the false positive results, thus, the lower rate of false positive results registered in 2025 may be considered a significant improvement derived from the experience gained over the years.

For as concerns the recovery rate, the participants detected an arithmetic mean of 12 worms (range 0-25) in the samples spiked with 25 worms, and an arithmetic mean of 7,5 worms (range 0-21) in the samples spiked with 15 worms.

Written and elaborated by
PTP person in charge

Dr. A. Santoro



Verified and issued by
The Director

Dr. A. Casulli



Date 19/05/2025

Notes:

1. To guarantee confidentiality, participant laboratories are identified by alphanumeric codes. PT participant identity is kept confidential and bound by professional secrecy. The PTP reserves itself the right to provide the laboratory PT result to the competent authority on request.
2. The organizer designates a qualified company for the transport and delivery of PT items.
3. Each participating laboratory receives a PT panel according to the PT scheme. Each PT item consists of intestinal mucosa, fixed in 70% ethanol, spiked or not with *Echinococcus* spp. adult worms. The homogeneity of PT items is ensured by an accurate control of the number of worms spiked into each sample (item), made by two operators using a stereo microscope. PT items are stable for 21 days from the date of preparation (corresponding to the shipping date), provided that they are maintained in suitable conditions.
4. At the beginning of each year, the organizer draws up a PT program and makes it known by publishing it on the EURLP website (for national, international, public and private laboratories) or by email (NRLs).
5. The final report issue of each PT round shows the PT program implementation.

End of the report

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