

Reissue n° 1 Final report PT-04: An 1/2023

PT-04: “Detection of Anisakidae L3 larvae in fish fillets”

Reason for reissue:

The date of PT Final Report was incorrect.

Design

| | | |
|--------------------------|---|--------------------------------------|
| Purpose | Evaluation of laboratories competence in detection anisakidae larvae in fish fillet | |
| Scheme type | Single, simultaneous | |
| Participants | National reference laboratories for parasites. Public and private laboratories | |
| N. of participants | Depending on request | |
| Method | <ul style="list-style-type: none">• ISO 23036-1:2021 Microbiology of the food chain — Methods for the detection of Anisakidae L3 larvae in fish and fishery products — Part 1: UV-press method.• ISO 23036-2:2021 - Microbiology of the food chain — Methods for the detection of Anisakidae L3 larvae in fish and fishery products — Part 2: Artificial digestion method.• EC Regulation No 2074/2005 (Candling) | |
| Test method | chosen by the participant | |
| PT items | Matrix | fresh water farmed fish fillet |
| | Item | Anisakidae live larvae |
| | N. of samples | 3 for each participant |
| | Distribution | Immediate shipment after preparation |
| Subcontracted activities | NA | |
| Results evaluation | Qualitative | |

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Membro degli Accordi di Mutuo Riconoscimento
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Implementation

| | | | | |
|----------------------|------------|----------|------------------------|---|
| N. of participants | 28 | PT items | fish fillet sandwiches | 93 |
| Public laboratories | / | | PT panel composition | 3 fish fillet sandwiches: one spiked with 1 larva; one spiked with 3 larvae; one without larva |
| Private laboratories | / | | | |
| NRL | 28 | | Shipping | DHL |
| Shipping dates | 13/03/2023 | | | |

Results

The PT final evaluation was qualitative only. The PT was considered passed if all positive and all negative samples were correctly identified by the participant.

| Laboratory code | N° of samples correctly identified | N° of samples NOT correctly identified | Method applied | Final evaluation |
|-----------------|------------------------------------|--|--------------------------------|------------------|
| A1 | 3 | 0 | Artificial digestion; | Positive |
| A2 | 3 | 0 | Artificial digestion | Positive |
| A3 | 3 | 0 | Artificial digestion | Positive |
| A4 | 3 | 0 | Artificial digestion | Positive |
| A5 | 3 | 0 | Artificial digestion | Positive |
| A6 | 3 | 0 | Candling; Artificial digestion | Positive |
| A7 | 3 | 0 | Candling; Artificial digestion | Positive |
| A8 | 3 | 0 | Artificial digestion | Positive |
| A9 | 3 | 0 | Artificial digestion | Positive |
| A10 | 3 | 0 | Candling; Artificial digestion | Positive |
| A12 | 2 | 1 | Artificial digestion | Negative |
| A13 | 3 | 0 | Artificial digestion | Positive |
| A15 | 3 | 0 | Artificial digestion | Positive |

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| | | | | |
|-----|---|---|--|----------|
| A16 | 3 | 0 | UV examination after freezing (UV-Press) | Positive |
| A18 | 3 | 0 | Artificial digestion | Positive |
| A19 | 3 | 0 | Artificial digestion | Positive |
| A20 | 3 | 0 | Artificial digestion | Positive |
| A21 | 3 | 0 | Artificial digestion | Positive |
| A26 | 3 | 0 | Artificial digestion | Positive |
| A28 | 3 | 0 | UV examination after freezing (UV-Press) | Positive |
| A29 | 3 | 0 | UV examination after freezing (UV-Press) | Positive |
| A30 | 3 | 0 | Candling; Compressorium; Artificial digestion;; | Positive |
| A31 | 3 | 0 | Artificial digestion | Positive |
| A35 | 3 | 0 | Artificial digestion | Positive |
| A36 | 3 | 0 | Artificial digestion | Positive |
| A38 | 3 | 0 | UV examination after freezing (UV-Press); Artificial digestion | Positive |
| A39 | 3 | 0 | UV examination after freezing (UV-Press) | Positive |
| A43 | 3 | 0 | Artificial digestion | Positive |

Legend:

- Laboratories that failed the PT are marked in bold.

Summary of results:

| | |
|---|----|
| Total number of PT panels | 31 |
| Number of participant laboratories | 28 |
| Number of participants that passed the PT | 27 |
| Number of participants that failed the PT | 1 |

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Overtime comparison of results

| Laboratory code | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|-----------------|------|------|------|------|------|------|------|------|------|------|
| A1 | P | P | P | P | P | P | N | P | P | P |
| A2 | P | P | P | N | P | P | P | P | P | P |
| A3 | N | P | P | P | P | P | | P | N | P |
| A4 | P | P | N | N | | | | | P | P |
| A5 | P | P | P | P | P | P | | P | P | P |
| A6 | P | P | P | P | P | P | P | P | P | P |
| A7 | P | P | P | P | P | P | P | P | P | P |
| A8 | P | P | P | | P | | | | | P |
| A9 | P | | P | N | P | | P | P | P | P |
| A10 | P | P | N | P | P | P | P | P | P | P |
| A11 | P | N | P | N | P | P | N | P | | |
| A12 | P | N | P | P | P | P | P | P | P | N |
| A13 | P | P | P | N | P | P | P | P | P | P |
| A15 | P | P | P | P | P | P | P | P | P | P |
| A16 | N | P | P | N | P | P | P | P | P | P |
| A17 | NR | | P | P | P | P | P | N | | |
| A18 | P | P | P | P | P | P | N | P | P | P |
| A19 | P | P | P | P | P | N | P | P | P | P |
| A20 | P | P | P | P | P | P | N | P | P | P |
| A21 | P | P | P | P | P | P | P | P | P | P |
| A23/A33/A25* | N | P | P | N | P | P | P | P | P | |
| A26 | P | P | P | P | P | P | P | P | P | P |
| A28 | P | | P | P | P | P | P | P | N | P |
| A29 | | | P | | P | P | P | P | P | P |
| A30 | | P | P | P | P | P | N | P | P | P |
| A31 | | P | P | P | P | P | | N | P | P |
| A32 | | P | | | | | | | N | |
| A35 | | | | | P | N | P | P | N | P |
| A36 | | | | P | P | P | P | P | P | P |
| A37 | | | | | N | | | | | |
| A38 | | | | | P | | | N | N | P |
| A39 | | | | | | P | | P | P | P |
| A41 | | | | | | | | N | | |
| A42 | | | | | | | | P | | |
| A43 | | | | | | | | | P | P |
| A44 | | | | | | | | | P | |

Legend: *Different code were assigned to the lab in different years

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Comments:

For the PT round 2023, 96% of the laboratories (27/28) passed the PT. Only one laboratory failed the PT reporting one false negative and, in addition, reported a lower number of larvae in the sample spiked with 3 larvae. No explanation was provided by the participant for the PT failure and low performance, likely due to analysts with limited experience and/or problems with the detection procedure.

In addition, three laboratories underestimated the number of larvae in sample spiked with 3 larvae with two using Artificial Digestion (AD) method and one using the UV-press (UV) method. The last one for instance failed the PT2022 thus indicating problems in the correct application of the UV-press method. Since the PT is only qualitative (presence/absence of the larvae), the PT results was considered positive but the laboratories were invited to consider the underestimation and to take appropriate actions including further training of the analyst on morphological identification of the larvae or proper application of the used method. The laboratory that failed the PT was invited to consider appropriate corrective actions (e.g. shipping of additional sample panel for an EQA).

In PT 2023 round a slight increase in the overall performance of the laboratories was observed in comparison to the previous year (2022)., In comparison to the previous years, we observed a constant trend in the number of laboratories that subscribe to the PT (Figure 1), although now limited only to NRLs. A decrease in the failure percentage was observed (4% in 2023 vs 16% in 2022), although this reflect a periodic trend (maybe reflecting turnover of technical personnel in each laboratory). Poor performance (failure) was not related to irregular or first time participation to the PT. Lack of experience of technical personnel (either new or not familiar with the test methods) could mainly explain negative results.

The relative percentage of detection methods adopted did not change substantially (Figure 2) with the Artificial digestion (AD) still being the prevalent method applied (22 laboratories, 78%), largely because it does not require special equipment. UV-press method (UV) alone, or followed by AD, was used in five laboratories (22%). Candling (C) (i.e. visual inspection) was always used in combination with artificial digestion. Candling is the only method clearly reported in the EU regulation 2074/2005.

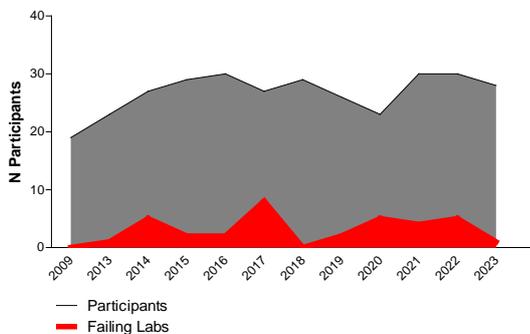


Figure 1. PT04 trend overtime

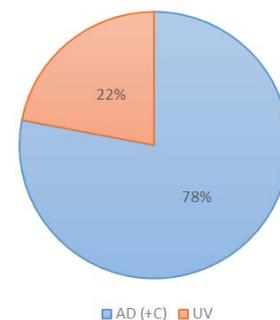


Figure 2. Percentage of the detection methods applied

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Written and elaborated by
PTP person in charge

Dr. Marco Lalle

Date 26/02/2024

Verified and issued by
The Director

Dr. A. Casulli

Achiana Celi

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 a fish fillet sandwich spiked or not with live Anisakidae larvae. The homogeneity of PT items is ensured by an accurate control of the number of larvae spiked into each sample (item) made by two operators. PT items are stable for 7 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 sending an email to the NRLs
5. The final report issue of each PT round shows the PT program implementation.

End of the report

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