



ParaFishControl

Towards an improved image of Mediterranean aquaculture products regarding food safety

**ParaFishControl Workshop “Mediterranean Fish Parasite
Management Strategies”**

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Challenge and Impact

➤ Challenge

To improve image and competitiveness of European aquaculture through food safety assessment

WILD NOT ALWAYS BETTER !

Increase of risk of transmission of fish-borne parasites due to the increasing and expanding consumption of traditional or newly trending culinary preparations based on raw/undercooked fish products

Gap on knowledge on risk assessment and on the presence of zoonotic helminth in fish farmed in European mariculture

To set up or refine diagnostic tools for their application in the field within industry auto-control plans aimed at excluding the presence of zoonotic parasites

➤ Impact

To increase the commercial value of fish products from aquaculture

To reduce the costs linked to fish inspections and to the application of surveillance plans, both in the public and private fish sectors

To avoid costs for control (freezing) of zoonotic parasites in farmed fish products to be consumed raw or undercooked

Our approach ...

1- Production of a Risk Map of European farmed fish with regard to the presence of zoonotic parasites ...

Marine aquaculture



Turbot



Gilthead seabream



European seabass



Atlantic salmon

Freshwater aquaculture



Carp



Rainbow trout

... through an extensive parasitological survey

2- Development of diagnostic tools with a feasible application by the industry

... and our team

➤ Team involved in the WP7 (Fish product safety)

WP Leader: AZTI - Spain

CSIC – Spain

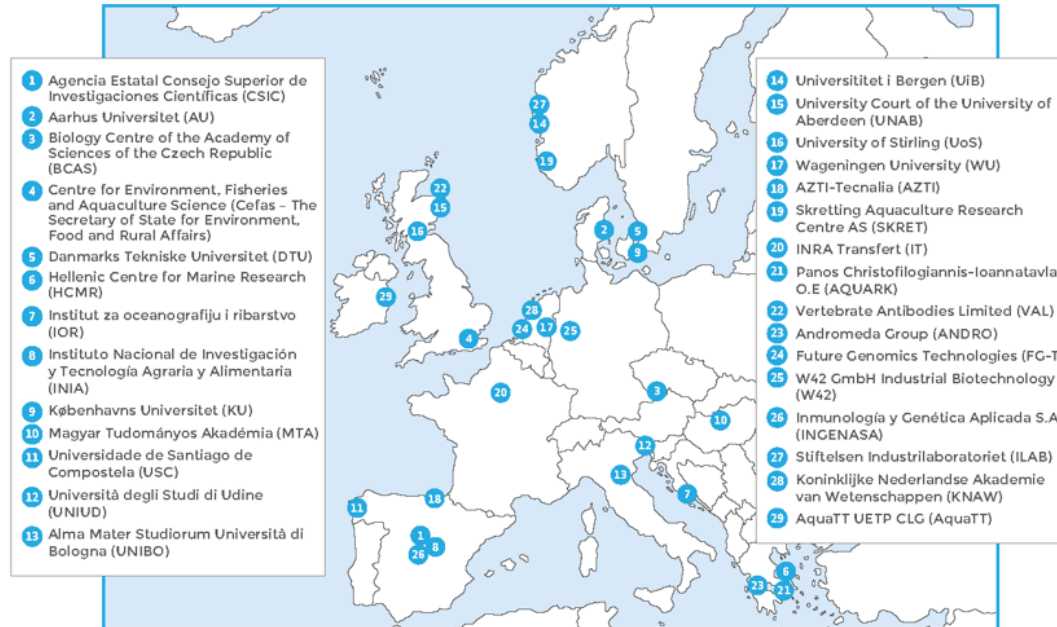
Turbot
Gilthead seabream
European seabass

HCMR – Greece

Gilthead seabream
European seabass

UNIBO – Italy

Gilthead seabream
European seabass
Rainbow trout



UiB – Norway
Atlantic salmon

KU – Denmark
Rainbow trout

MTA – Hungary
Carp

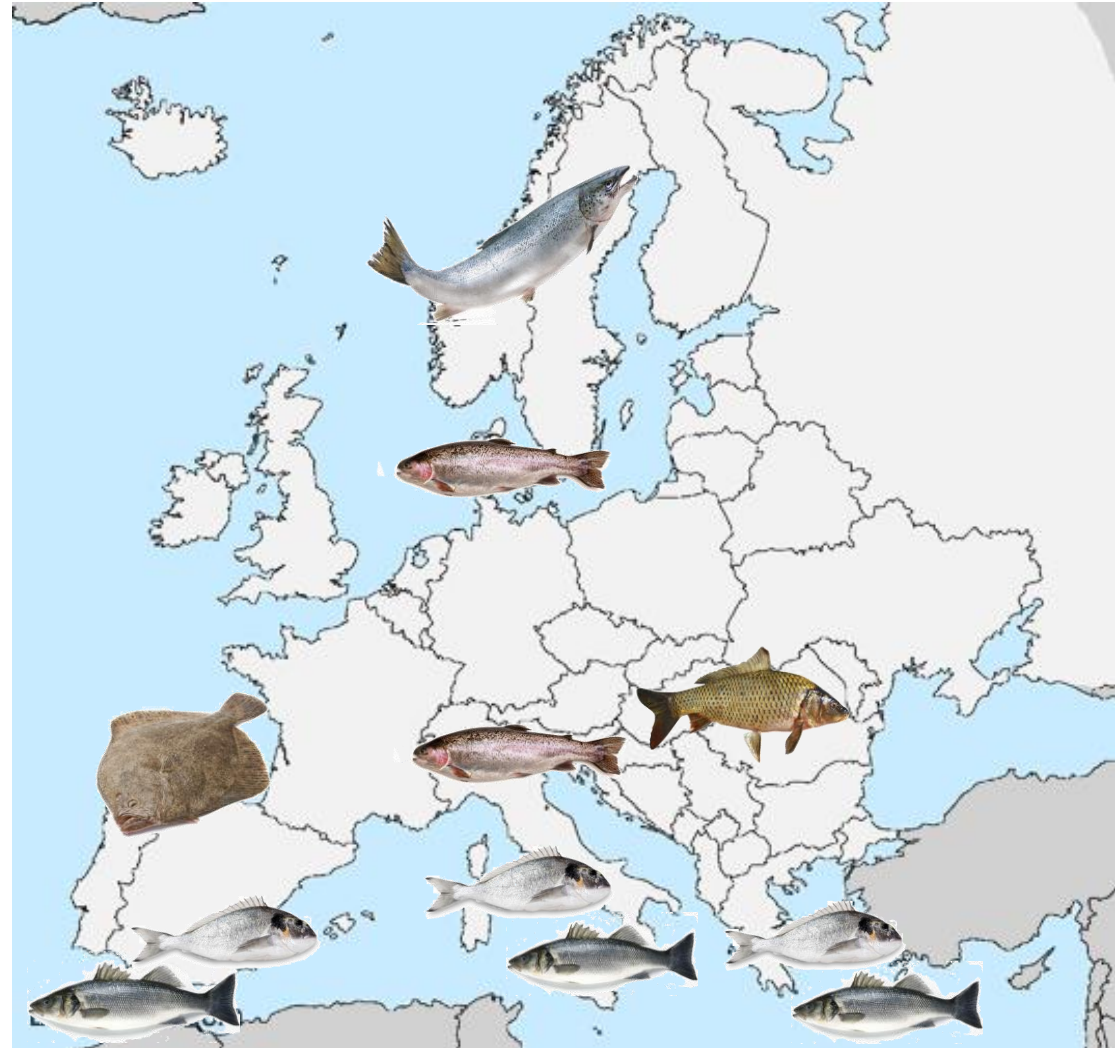
Our proposed solution: Risk map

9333 fish examined:

- 642 GSB and ESB imported from Greece, Turkey and Croatia
- 1480 runts

+ 270 smoked fillets from farmed Atlantic Salmon

NO ZOONOTIC PARASITES HAVE BEEN FOUND IN THE EXAMINED FISH



DIAGNOSTIC TOOLS: UV-PRESS METHOD

PARASITE, FP7 project: <http://parasite-project.eu/>

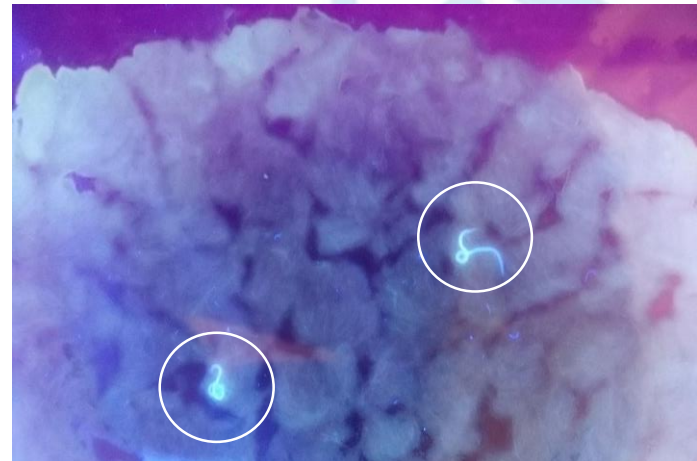
<https://www.youtube.com/watch?v=W5CNmvFcbO8>

PARAFISHCONTROL, H2020 project <https://www.parafishcontrol.eu>

<https://www.youtube.com/watch?v=YCn4-zEOSZk&t=3s>

	UV-Press	Artificial Digestion
Accuracy	100%	97%
Sensitivity	100%	96%
Specificity	100%	100%

http://parasite-project.eu/didactic/Workshop_UV-Press_en_web.pdf

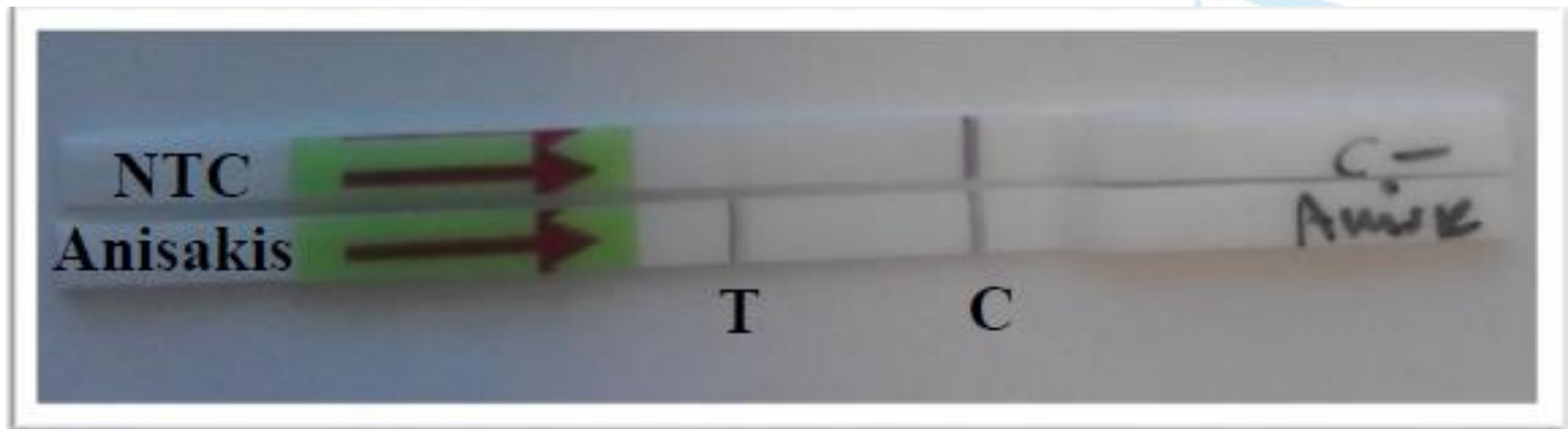


Our proposed solution (II)

DIAGNOSTIC TOOLS: RAPID AND PORTABLE *ANISAKIS* DETECTION METHOD

qPCR and/or Isothermal PCR (AZTI)

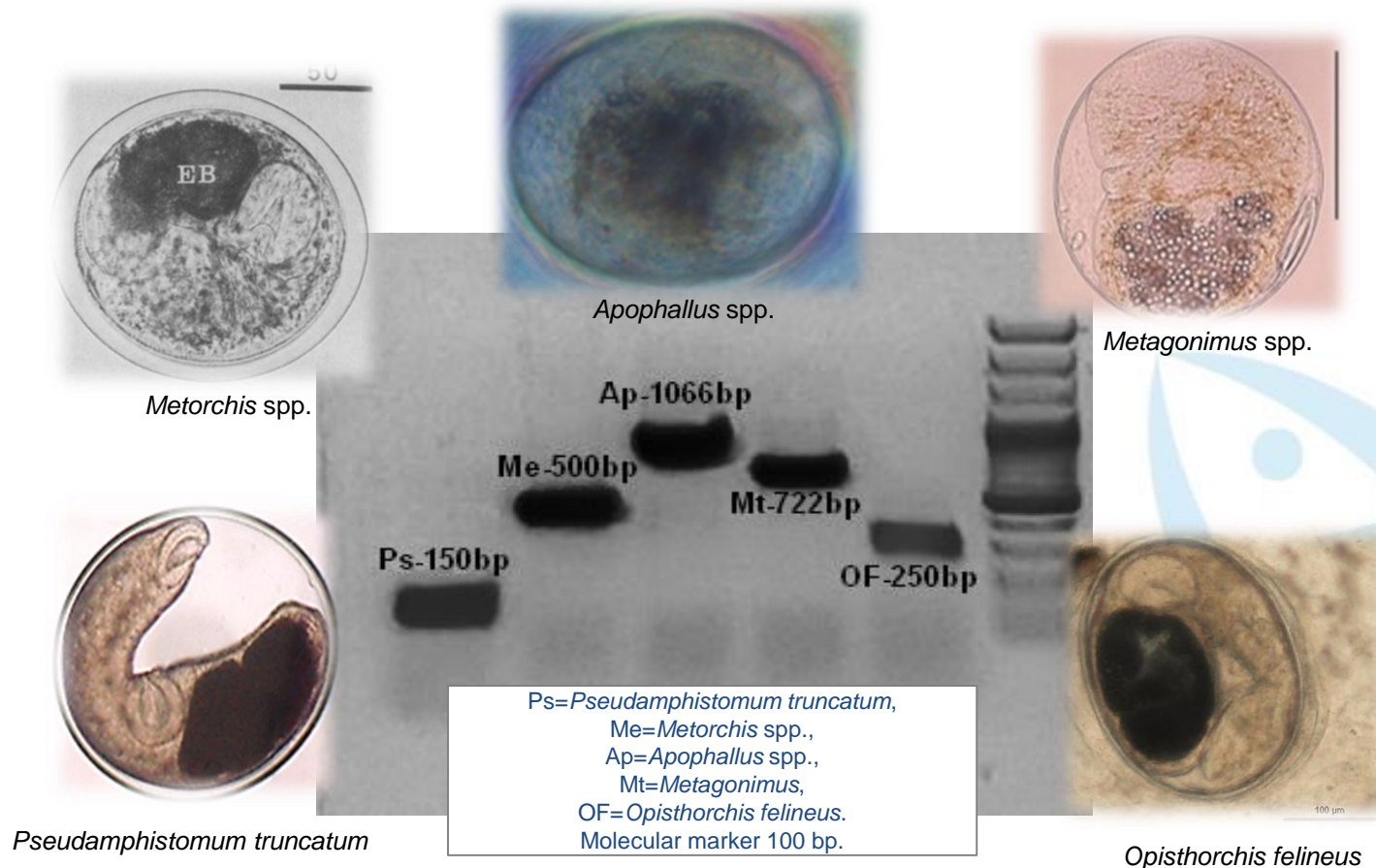
For the very first time it is possible to identify *Anisakis simplex* (excluding DNA isolation) within 15 minutes! This cheap, portable, and user-friendly kit could become a valuable tool in the future to certify that fish farmed in the EU is grown in an environment free of *Anisakis*.



LF RPA Assay for the detection of *Anisakis simplex*: Test line (T); Internal Control line (C). Negative Template control (NTC)

Our proposed solution (III)

DIAGNOSTIC TOOLS: MULTIPLEX PCR FOR DIGENEAN METACERCARIAE



Expected benefits for the industry (I)

Improvement of image of European Aquaculture products after assessing as negligible the zoonotic risk due to parasites (as already done for Atlantic salmon) - results already presented to national & international conferences, fairs, industry forums and ongoing publications in international journals

Possible exemption from the freezing treatment which is mandatory for fish products intended to be consumed raw/undercooked (as already done for Atlantic salmon)

More cost-effective modelling of autocontrol and surveillance plans in fish farms/industry on the basis of the evidence resulting from these mapping: decrease of number of fish to be sampled and examined

Current status ...

According to the EFSA Scientific Opinion on risk assessment of parasites in fishery products (2010) and the Commission Regulation (EU) No 1276/2011, so far the risk of fish-borne zoonotic parasites transmission to human is negligible only for farmed Atlantic salmon *Salmo salar*. For the other farmed species in European and Mediterranean aquaculture data are not enough significative to define or not a similar situation.

The results of the survey carried out in PFC Project allow to assess as negligible the risk of zoonotic parasites in European farmed fish species, similarly to Atlantic salmon

... and next steps

1 – REGULATORY FRAMEWORK AMENDEMENT

Based on the results coming from ParaFishControl project, policy makers will be called to implement and upgrade the «Hygiene Package»

Direct involvement of national and European Associations of Fish Producers and national Authorities (ex. Ministry of Health in Italy)

... and next steps

2 – AUTOCONTROL SYSTEM

Design and write out a “Good practice handbook”

Refinement of internal HACCP taking in account the risk factors for zoonotic parasites and the methods and diagnostic tools for their detection

...and next steps

3 – LABELLING STRATEGY

Fresh fish from farms
Never frozen

SALMONE AFFUMICATO
NORVEGESE
Naturalmente ricco in Omega 3

LAVORATO SOLO DA PESCE FRESCO E MAI CONGELATO

LAVORATO SOLO DA PESCE FRESCO E MAI CONGELATO

SALATURA A SECCO

50g e



SALMONE AFFUMICATO
NORVEGESE
Naturalmente ricco in Omega 3

Il Salmone Affumicato Norvegese proveniente da allevamenti situati nelle acque fredde e profonde dei fiordi norvegesi, è selezionato con cura e lavorato da pesce fresco mai congelato con sapienza artigianale. Viene poi rifilato per eliminare le parti meno nobili del filetto e salato a secco. Successivamente affumicato, secondo tradizione, per combustione naturale del legno di faggio che conferisce al prodotto il caratteristico profumo e sapore. Il salmone, **naturalmente ricco di Omega 3** e con un alto contenuto di proteine, è un alleato importante da inserire in una dieta varia ed equilibrata. È ideale come ingrediente per primi piatti raffinati e perfetto come antipasto. Provalo marinato con olio, limone e pepe verde o rosa, con crostini caldi e guarnito con ciuffetti di aneto.

SALMONE NORVEGESE AFFUMICATO A FETTE.
INGREDIENTI: salmone (Salmo salar) allevato in Norvegia 97% sale.
DA CONSUMARE ENTRO: vedere la data riportata sopra.
CONSERVAZIONE: conservare in frigorifero da 0°C a +4°C e consumare entro 2 giorni dall'apertura. Prodotto confezionato sottovuoto: non forare la confezione.
MODALITÀ DI PREPARAZIONE: si consiglia di aprire la busta 15 minuti prima di consumare il salmone.
AVVERTENZE: può contenere eccezionalmente lische.

50g e



VALORI NUTRIZIONALI	
VALORI MEDI	per 100g di prodotto
ENERGIA	723kJ/175kcal
GRASSI	9,9g
di cui Acidi grassi saturi	3,5g
CARBIDRATI	0g
di cui Zuccheri	0g
FIBRE	0g
PROTEINE	21g
SALE	3g

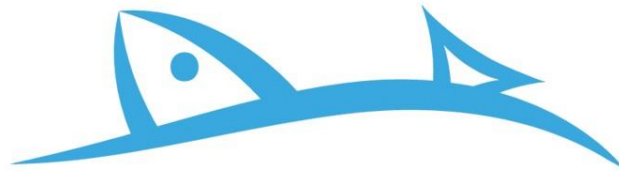
Contenuto medio in acidi grassi Omega 3 (EPA + DHA) in 100g di prodotto: 0,52g.

Our proposal:

Conclusions



Thank You



ParaFishControl

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