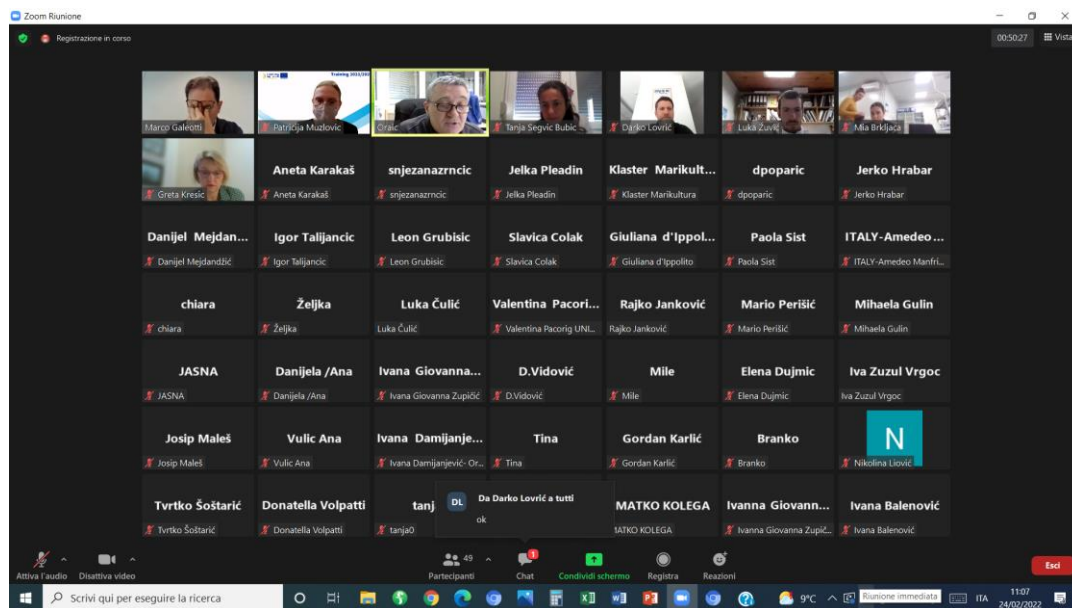


AdriAquaNet

Enhancing Innovation and Sustainability in Adriatic Aquaculture

WP 4.4 Trainings for veterinarians and SMES

WP4– Training nr. 4, report, February 24, 2022



Introduction

The fourth training course entitled “GUIDELINE FOR SUSTAINABLE FARMING OF EUROPEAN SEA BASS AND GILTHEAD SEA BREAM” took place on February 24, 2022 from 11:00 till through the "Zoom platform": <https://us02web.zoom.us/j/82339592913?pwd=enVwZkl3NWVvMkNkbWlqZTBqZ2ZxLdz09>

The workshop was organised by the Croatian partners the AdriAquaNet consortium, Mariculture cluster **PP7** and the Croatian Institute of Veterinary Medicine (CVI) in Zagreb **PP1** with the aim to reach veterinarians, biologists, animal producers, agronomists, breeders, operators in the sector, in particularly Croatian market. The lessons were held in English and Croatian and the translation was provided. 71 participants followed the complete training Cycle of WP3,4,5 activities and got the AAN certificate of attendance.

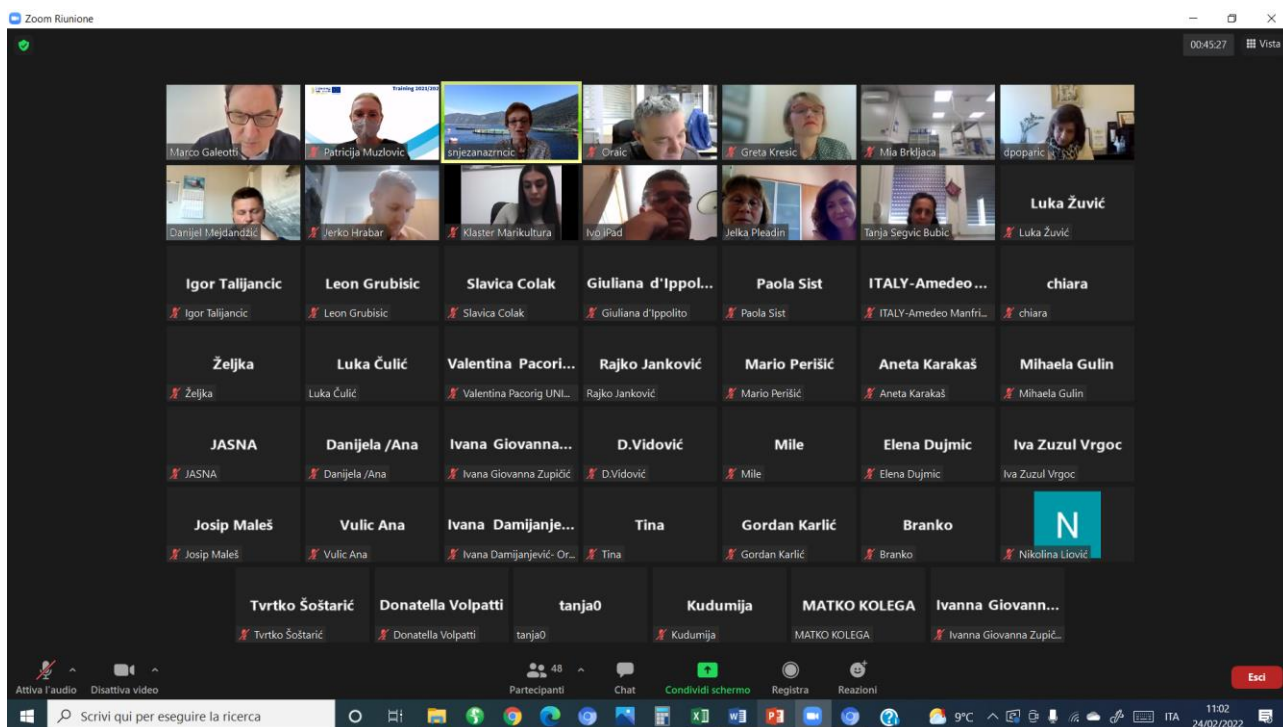
1

The programme involved 7 presentations of which:

- 1 lesson related to WP3
- 4 lessons related to WP4
- 2 lessons related to WP5

After the registration of the participants, M. Galeotti (LP) introduced the project to the attendees. LP external services LETTERA B was in charged for the zoom connection, PP1 coordinator Snježana Zrnčić was the moderator of the whole course.





Jerko Hrabar, PP3 researcher, was involved as a speaker and participant in the activity 4.4. and he presented a lesson entitled **“Probiotics in feed for Gilthead Sea bream”**. **Donatella Volpatti** and **Valentina Pacorig**, LP researchers, were involved in the training as participants and relators and Valentina held the lesson entitled **“Application of marine natural products in health management of Gilthead Sea bream and European sea bass”**. **Dražen Oraić**, PP1 researcher held a lesson on **“Vaccination strategy in European sea bass farming”**, while **Amedeo Manfrin**, PP4 coordinator and researcher presented a lesson on **“Welfare in sea bream and sea bass farming”**.

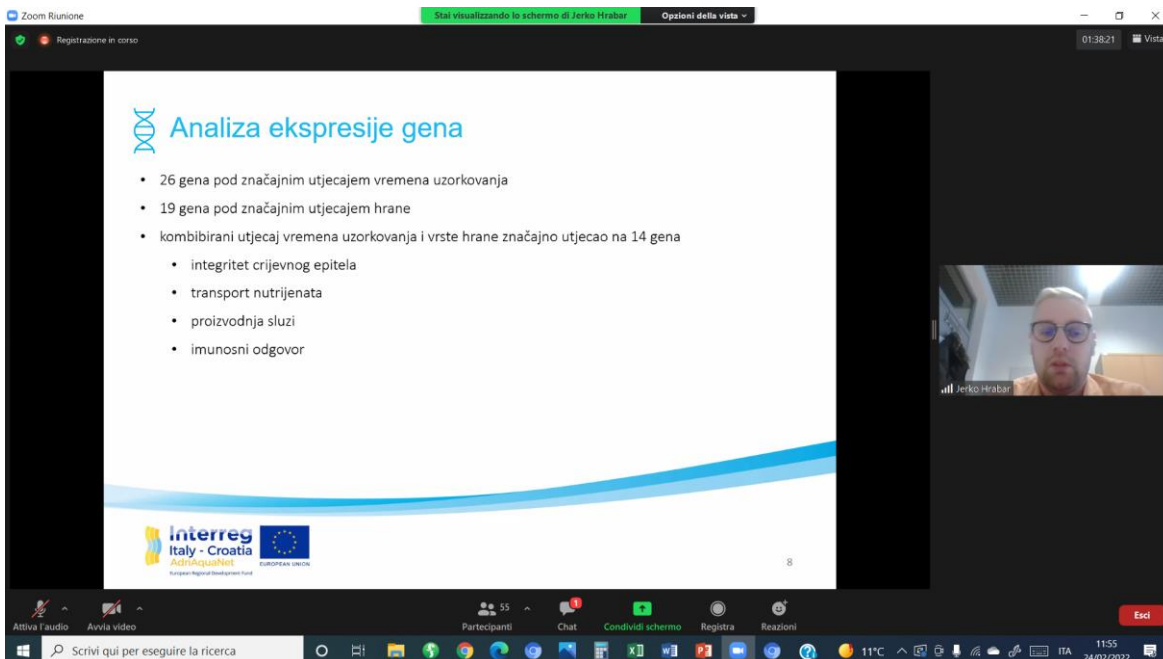
Topics

The following presentations regarding WP4 was discussed among the participants and all relators present debated about:

1. The importance of probiotics in fish feed in mariculture.
2. The tests performed during the AAN project on 3 different feeds: new feeds and comparison with the commercial feed.
3. Fish vaccinations and alternatives with application of marine natural products.

4. Vaccination strategy in European sea bass farming.
5. **Welfare indicators (WIs)** as observations or measurements that provide information about the extent to which the animal's welfare needs are met and **Laboratory Based Welfare Indicators (LABWIs)** as WIs that require access to a laboratory or other analytical facilities to provide useful information.
6. Welfare Indicators that can be used in an on-farm welfare assessment are termed Operational Welfare Indicators, how are they classified and how we discussed them with the farmers involved in AAN tests. New AAN check list of WI.

3



Zoom Riunione

Stai visualizzando lo schermo di Jerko Hrabar

Opzioni della vista

01:38:21

Registrazione in corso

Analiza ekspresije gena

- 26 gena pod značajnim utjecajem vremena uzorkovanja
- 19 gena pod značajnim utjecajem hrane
- kombinirani utjecaj vremena uzorkovanja i vrste hrane značajno utjecao na 14 gena
 - integritet crijevnog epitela
 - transport nutrijenata
 - proizvodnja sluzi
 - imunوسي odgovor

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Jerko Hrabar

Attiva l'audio Avvia video

Partecipanti 55

Chat Condividi schermo Registra Reazioni

Esci

Scrivi qui per eseguire la ricerca

11°C

ITA

24/02/2022

Zoom Riunione | Stai visualizzando lo schermo di Valentina Pacorig UNIUD | Opzioni della vista

Registrazione in corso | 01:55:44 | Vista

FINAL CONSIDERATIONS/POSITIVE ASPECTS/ LIMITS

- 😊 Proposal of a lab/*in vivo* model to test the biological properties of natural compounds – fish cell lines and fish models suitable for this purpose – results deliverable also to human/animal medicine
- 😊 Huge number of substances to be potentially tested (also mentioned by the literature), but limited number of active candidates to be finally exploited *in vivo*
- 😞 Compounds have to be approved by current legislation and, moreover, they have to be inexpensive and easily purifiable
- 😞 Still quite difficult replacement of antibiotics and classical chemicals with natural compounds
- 😊 Insights on the natural compounds action mechanisms still to be performed or refined

11

Valentina Pacorig UNIUD

Attiva l'audio | Avvia video | Partecipanti | Chat | Condividi schermo | Registra | Reazioni | Esci


Scrivi qui per eseguire la ricerca | 11°C | 24/02/2022

4


Zoom Riunione | Stai visualizzando lo schermo di Valentina Pacorig UNIUD | Opzioni della vista

Registrazione in corso | 01:43:50 | Vista

IMMUNOMODULATORY PROPERTIES



Gastropteran meckelii



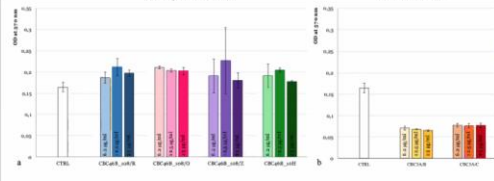
Crambe crambe

MNP CONCENTRATIONS:
6.2 µg/ml
12.5 µg/ml
25 µg/ml

In vitro assays on sea bass HK leukocytes:

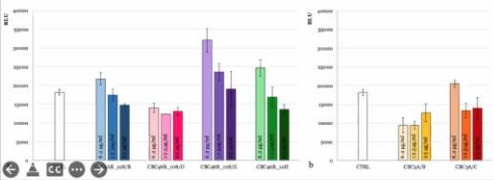
CELL PROLIFERATION

MTT colorimetric assay, Galeotti *et al.*, 1999
in the presence of PHA-P (50 µg/ml).



RESPIRATORY BURST ACTIVITY

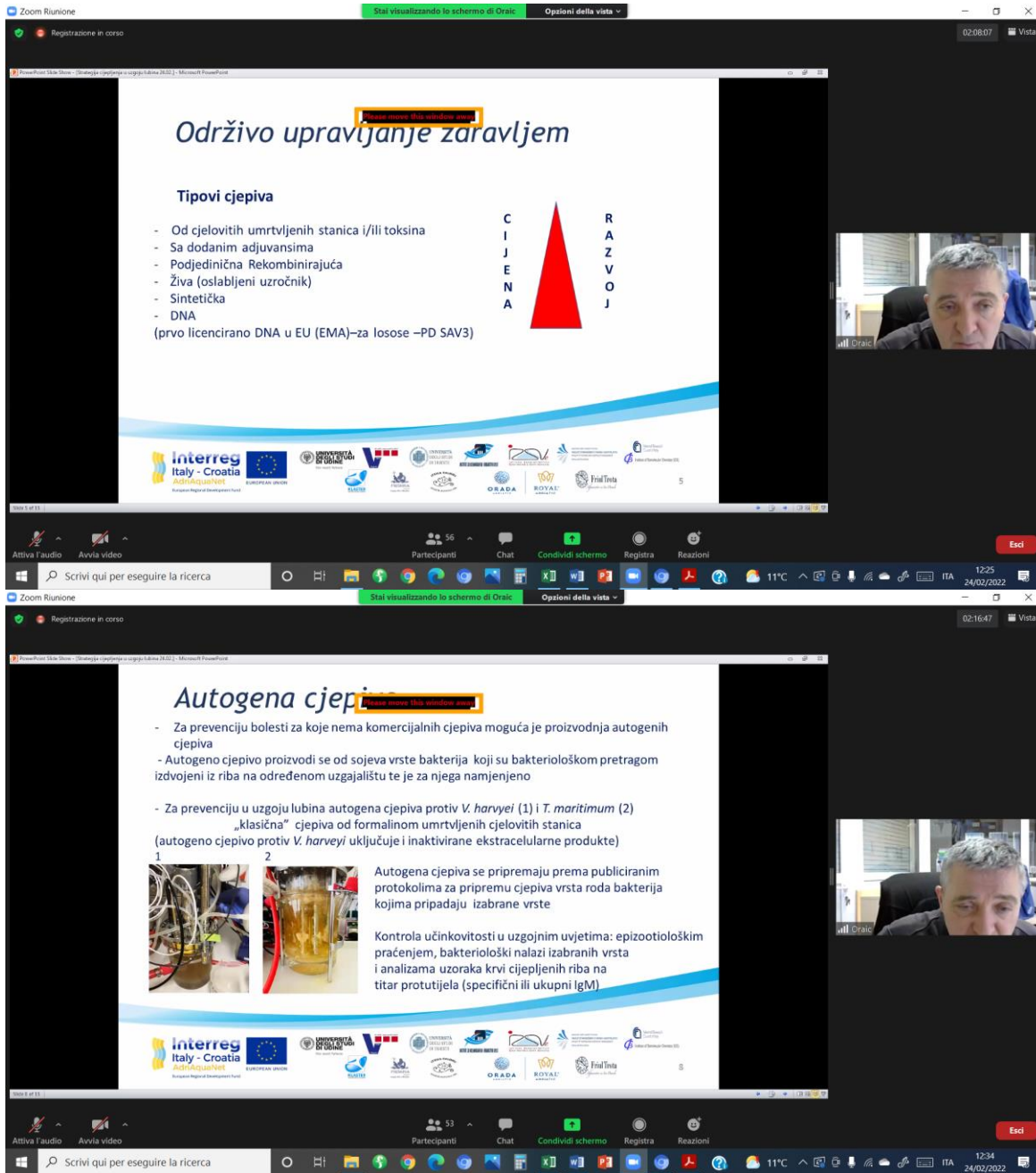
Chemiluminescence assay, Galeotti *et al.*, 2013
in the presence of PMA (10 µg/ml).



Oranic

Attiva l'audio | Avvia video | Partecipanti | Chat | Condividi schermo | Registra | Reazioni | Esci

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Održivo upravljanje zaravljem

Tipovi cjepiva

- Od cjelovitih umrtvljenih stanica i/ili toksina
- Sa dodanim adjuvansima
- Podjedinčna Rekombinirajuća
- Živa (oslabljeni uzročnik)
- Sintetička
- DNA

(prvo licencirano DNA u EU (EMA) – za losose – PD SAV3)

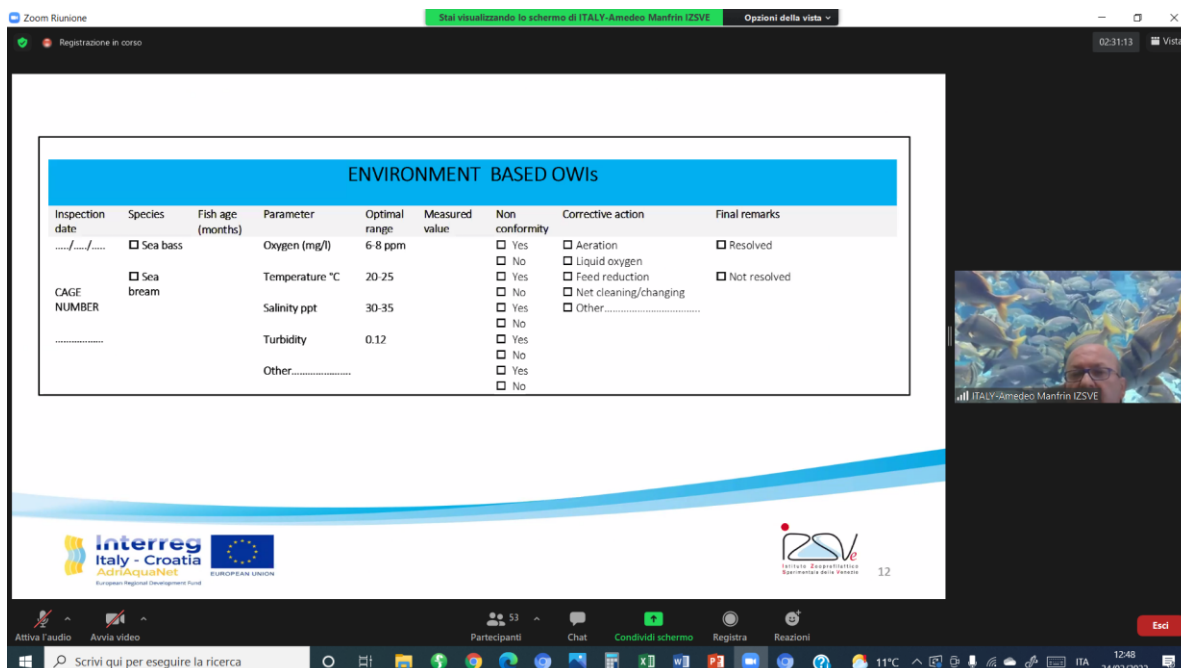
Autogena cjepiva

- Za prevenciju bolesti za koje nema komercijalnih cjepiva moguća je proizvodnja autogenih cjepiva
- Autogeno cjepivo proizvodi se od sojeva vrste bakterija koji su bakteriološkom pretragom izdvojeni iz riba na određenom uzgajalištu te je za njega namijenjeno
- Za prevenciju u uzgoju lubina autogena cjepiva protiv *V. harveyi* (1) i *T. maritimum* (2) „klasična“ cjepiva od formalinom umrtvljenih cjelovitih stanica (autogeno cjepivo protiv *V. harveyi* uključuje i inaktivirane ekstracelularne produkte)

Autogena cjepiva se pripremaju prema publiciranim protokolima za pripremu cjepiva vrsta roda bakterija kojima pripadaju izabrane vrste

Kontrola učinkovitosti u uzgojnim uvjetima: epizootiološkim praćenjem, bakteriološki nalazi izabranih vrsta i analizama uzoraka krvi cijepljenih riba na titar protutijela (specifični ili ukupni IgM)

5



Zoom Riunione

Stai visualizzando lo schermo di ITALY-Amedeo Manfredini IZSVE

Opzioni della vista

02:31:13

Registrazione in corso

ENVIRONMENT BASED OWIs

Inspection date	Species	Fish age (months)	Parameter	Optimal range	Measured value	Non conformity	Corrective action	Final remarks
...../...../.....	<input type="checkbox"/> Sea bass		Oxygen (mg/l)	6-8 ppm		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Aeration <input type="checkbox"/> Liquid oxygen	<input type="checkbox"/> Resolved
	<input type="checkbox"/> Sea bream		Temperature °C	20-25		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Feed reduction <input type="checkbox"/> Net cleaning/changing	<input type="checkbox"/> Not resolved
CAGE NUMBER			Salinity ppt	30-35		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Other.....	
			Turbidity	0.12		<input type="checkbox"/> Yes <input type="checkbox"/> No		
			Other.....			<input type="checkbox"/> Yes <input type="checkbox"/> No		

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EUROPEAN UNION

IZSV Istituto Zooprofilattico Sperimentale della Toscana

12

Attiva l'audio Avvia video

53 Partecipanti Chat Condividi schermo Registra Reazioni

Esci

Scrive qui per eseguire la ricerca

11°C

ITA

12:48

24/02/2022

6

The following deliverables were produced and put in SIU:

1. Agenda in EN and CRO
2. Participant's attendance certificates
3. Minutes of discussion with attendees
4. Presentation of lessons and training materials

Conclusions and Next Steps

The following training will also be organized online due to sanitary situation caused by Covid-19 emergency, on March 10, 2022 by Croatian partners.