AdriAquaNet

Enhancing Innovation and Sustainability in Adriatic Aquaculture

WP 4.4 Trainings for veterinarians and SMEs

WP4– Training nr. 6, report, 06.05.2022

Introduction

The **sixth training course** entitled "**THE CONTRIBUTIONS OF THE ADRIAQUANET PROJECT TO THE IMPROVEMENT OF SUSTAINABILITY IN MARICULTURE**" was held in presence on May 6, 2022, 2021 at the conference room of HOTEL SARAGO, Corso Mazzini, 233 in Ostuni (BR), Italy) and simultaneously in remote on the platform ZOOM through the link https://us02web.zoom.us/j/83097986553?pwd=K2NMZFRFSWNnSDZjeWt5RkZCWjNIZz09

It was organized by LP in collaboration with PP9 and external service LETTERAB. It was o free and aimed at university researchers and students, breeders, operators, veterinarians, technicians in the aquaculture and fish farming sector, but it is also open to all interested parties. 50 participants were present in Ostuni and 29 followed the training online. The training was held in Italian and English.

All three training cycles (WP3, WP4 and WP5) were gathered in one-day training course in order to facilitate the organization and the knowledge transfer to the attendees that were interested in different topics.

The event was accredited and included a certificate of participation of the Italian Fish Farmers Association - API which concluded the day with a presentation of the new routes for sustainable aquaculture. During the morning the experts talked about the management of the facilities and fish products, the development of a practical method of assessing the welfare of farmed fish and the identification of natural substances such as immunostimulants and antimicrobials for the control of bacterial and parasitic diseases. They focused on the marketing of farmed fish, in particular sea bass and sea bream, and derivative products and the testimonies of Italian and Croatian companies, that were involved in all phases of the design experimentation, were presented. In the afternoon, the researchers presented the results of the three-year efficacy trials of new feeds in mariculture and their influence on fish quality. In addition, the experts illustrated a new integrated modelling approach to monitor and manage farming practices, the use of technologies to reduce pollution of fish farms by using wastewater to produce biomethane and the use of photovoltaic and heat pump devices in marine aquaculture with direct evidence of the commercial hatchery where these innovations have been applied.

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The course had two sessions: The morning **»SESSION 1: Improvement of the Management of fish facilities and Fish products: The AdriAquaNet project's contributions«** united 5 presentations of which 1 general project presentation, 2 related to the work and topics of WP4 and 2 to the work and topics of WP5.

The afternoon **»SESSION2: Improvement of the Sustainability of fish facilities and Fish products: The AdriAquaNet Project's Contributions«** was all referred to the topics of WP3 with **5 presentations** and concluded with an overview of the new routes of Sustainable aquaculture presented by A. Fabris (API-Associazione Piscicoltori Italiani – external collaborator PP2) that moderated the second session with M. Galeotti (LP) who introduced and moderated the morning session.

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Amedeo Manfrin, PP4 coordinator from Istituto Zooprofilattico Sperimentale delle Venezie – IZSVe presented a lesson on the "**Assessment of the welfare of farmed fish: development of a practical method.**" PP6 research group (Angelo Fontana, **Claudia Honisch**, Genoveffa Nuzzo, (PaoloRuzza), ICB CNR - Padova- Napoli) presented a lesson on the "**Identification of natural molecules with immunomodulating and antibiotic properties for sustainable fish farming. "**

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A light lunch was organised between session for the relators and participants.

The following deliverables were produced and put in SIU:

1. **Program and Agenda in EN and IT**
2. **Press release in EN and IT**
3. **Poster in A4 and A3 format**
4. **Attendance lists of participants in presence and on zoom**
5. **Minutes of discussion with attendees**
6. **Certificates of attendance**
7. **Presentation of lessons and training materials**

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Topics

The following presentations regarding WP3 were discussed among the participants and all relators present debated about:

1. **WELFARE MONITORING**:
    a. Development of Operational Welfare Indicators (OWI) scoring based on fish behavior (e.g. feed intake, swimming activity, ventilation rate) and/or fish body condition.
    b. Use in practice of OWI on reared fish in farms during the above described activity as non-invasive and early warning of potential welfare problems (PP8-Friskina, PP9-Ittica Caldoli, PP10-Orada Adriatic).
    c. Welfare Indicators that can be used in an **on-farm** welfare assessment are termed **Operational Welfare Indicators**, OWIs (see Noble *et al.*, 2012) based on Environment and on Animal (group and individual).

2. **CHALLENGES in aquaculture**:
    a. Infectious diseases due to new pathogens (Development of antibiotic resistance, Spreading antibiotic resistance in human pathogens, Allergic or toxic effects, Safe and eco-sustainable feed.
    b. AAN research for new innovative, safe and sustainable products in "Natural Products".

Conclusions and Next Steps

The following training cycle will be organized the next day, on May 7, 2022 in Ostuni.

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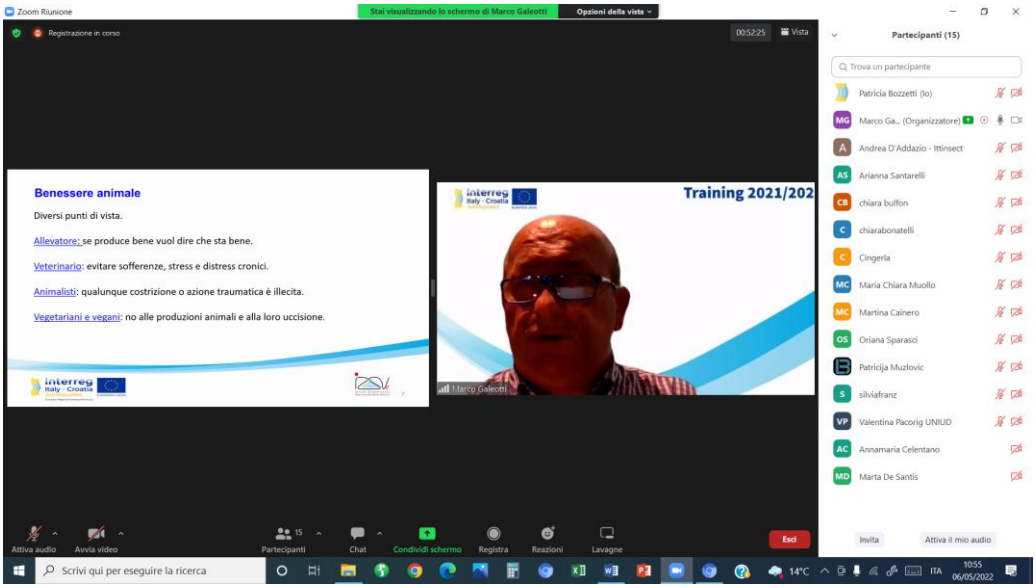

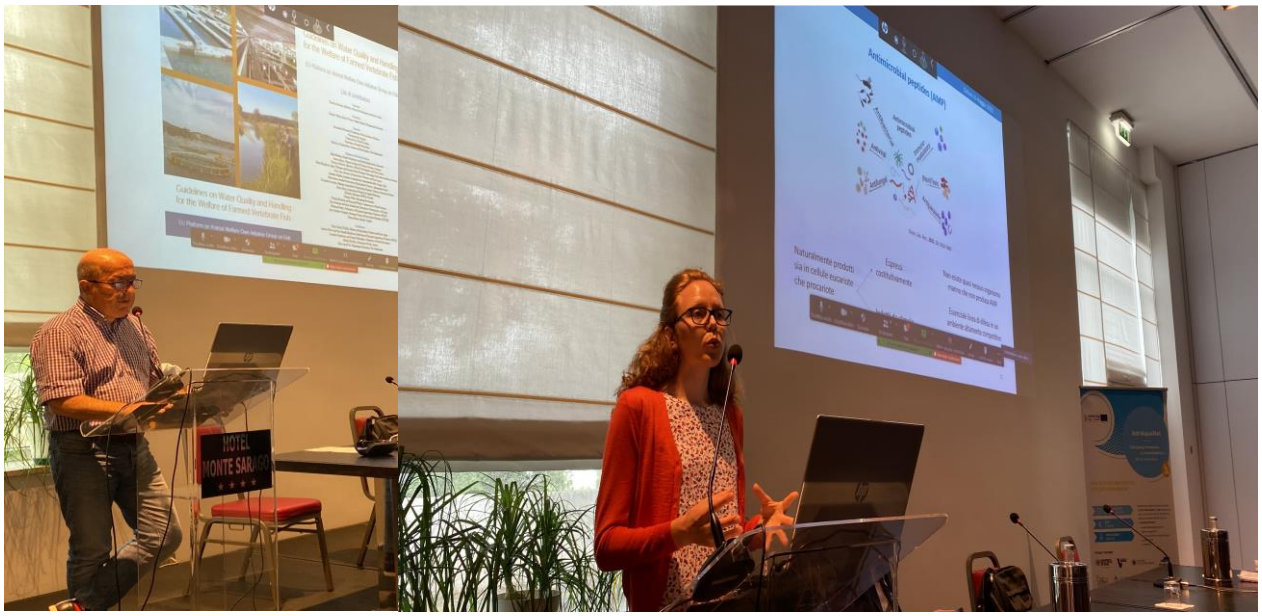

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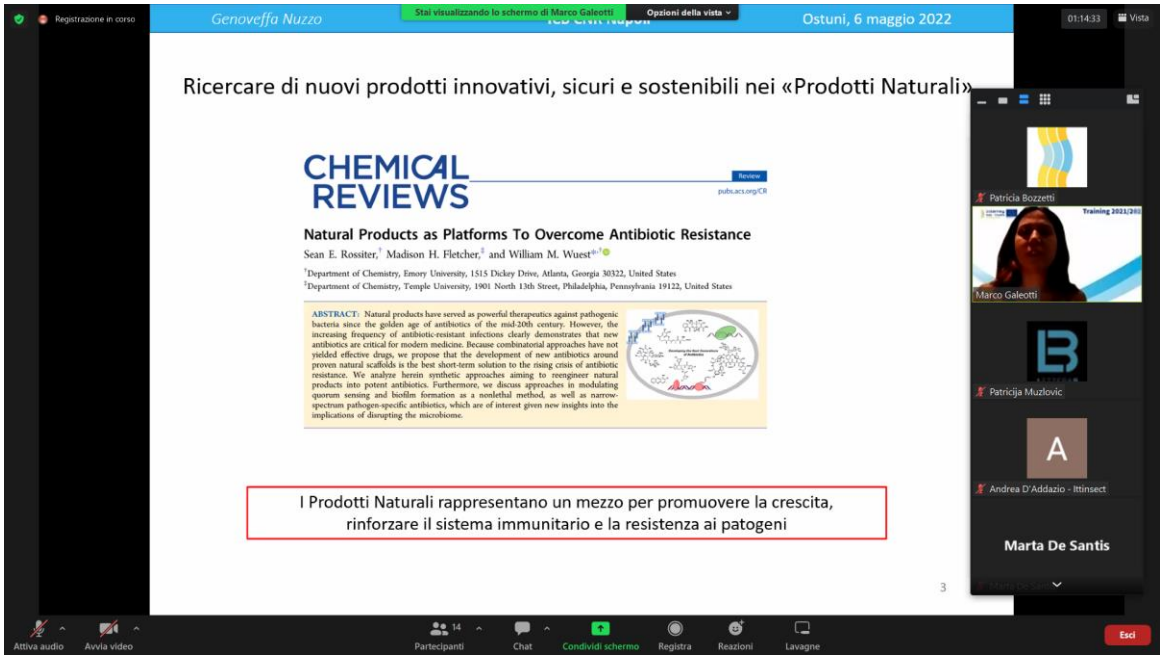
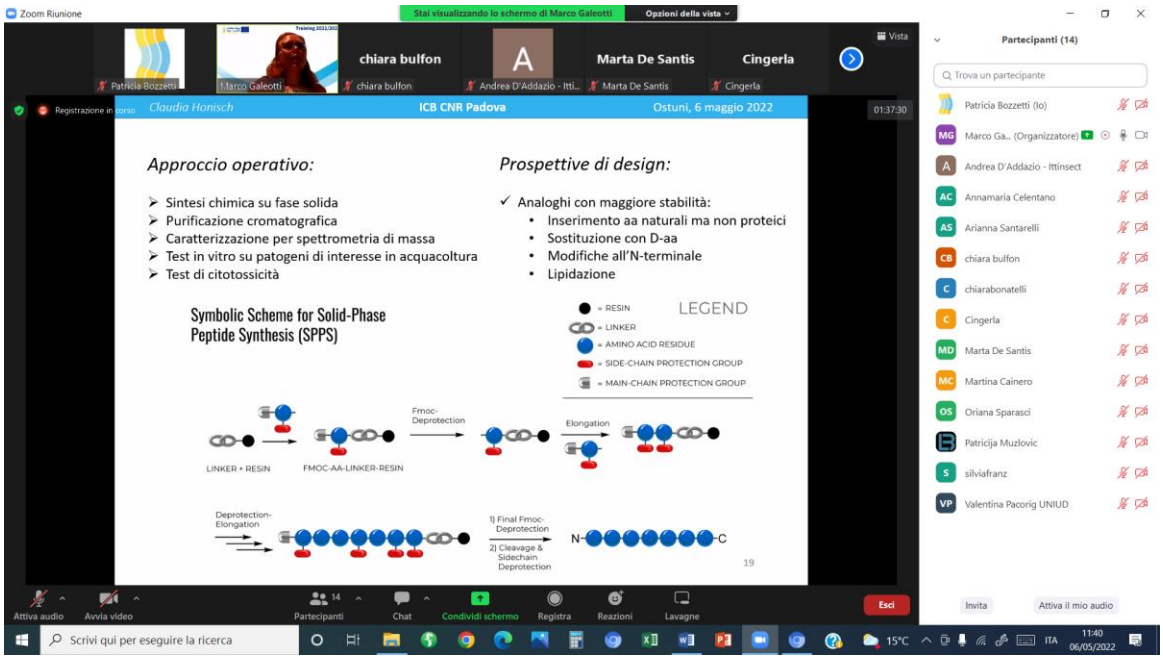

Genoveffa Nuzzo
Ostuni, 6 maggio 2022
Ricercare di nuovi prodotti innovativi, sicuri e sostenibili nei «Prodotti Naturali»
CHEMICAL REVIEWS
Natural Products as Platforms To Overcome Antibiotic Resistance
Sean E. Rossiter, Madison H. Fletcher, and William M. Wuest
I Prodotti Naturali rappresentano un mezzo per promuovere la crescita, rinforzare il sistema immunitario e la resistenza ai patogeni
Patricia Bozzetti
Marco Galeotti
Patricija Muzlovic
Andrea D'Addazio - Ittinsect
Marta De Santis


Claudia Honisch
ICB CNR Padova
Ostuni, 6 maggio 2022
Approccio operativo:
Sintesi chimica su fase solida
Purificazione cromatografica
Caratterizzazione per spettrometria di massa
Test in vitro su patogeni di interesse in acquacoltura
Test di citotossicità
Prospettive di design:
Analoghi con maggiore stabilità:
Inserimento aa naturali ma non proteici
Sostituzione con D-aa
Modifiche all'N-terminale
Lipidazione
Symbolic Scheme for Solid-Phase Peptide Synthesis (SPPS)
LEGEND
RESIN
LINKER
AMINO ACID RESIDUE
SIDE-CHAIN PROTECTION GROUP
MAIN-CHAIN PROTECTION GROUP
Fmoc-Deprotection
Elongation
LINKER + RESIN
FMOC-AA-LINKER-RESIN
Deprotection-Elongation
1) Final Fmoc-Deprotection
2) Cleavage & Sidechain Deprotection
Partecipanti (14)