

LARVOOST



MARINE AND TERRESTRIAL BY-PRODUCTS FROM FOOD-PROCESSING ORIGIN AND HIGH-VALUE BIOPRODUCTS AS GILTHEAD SEA BREAM (*Sparus aurata*) **LARVAE GROWTH AND HEALTH BOOSTERS (LARVOOST).**

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LARVOOST

Research team:

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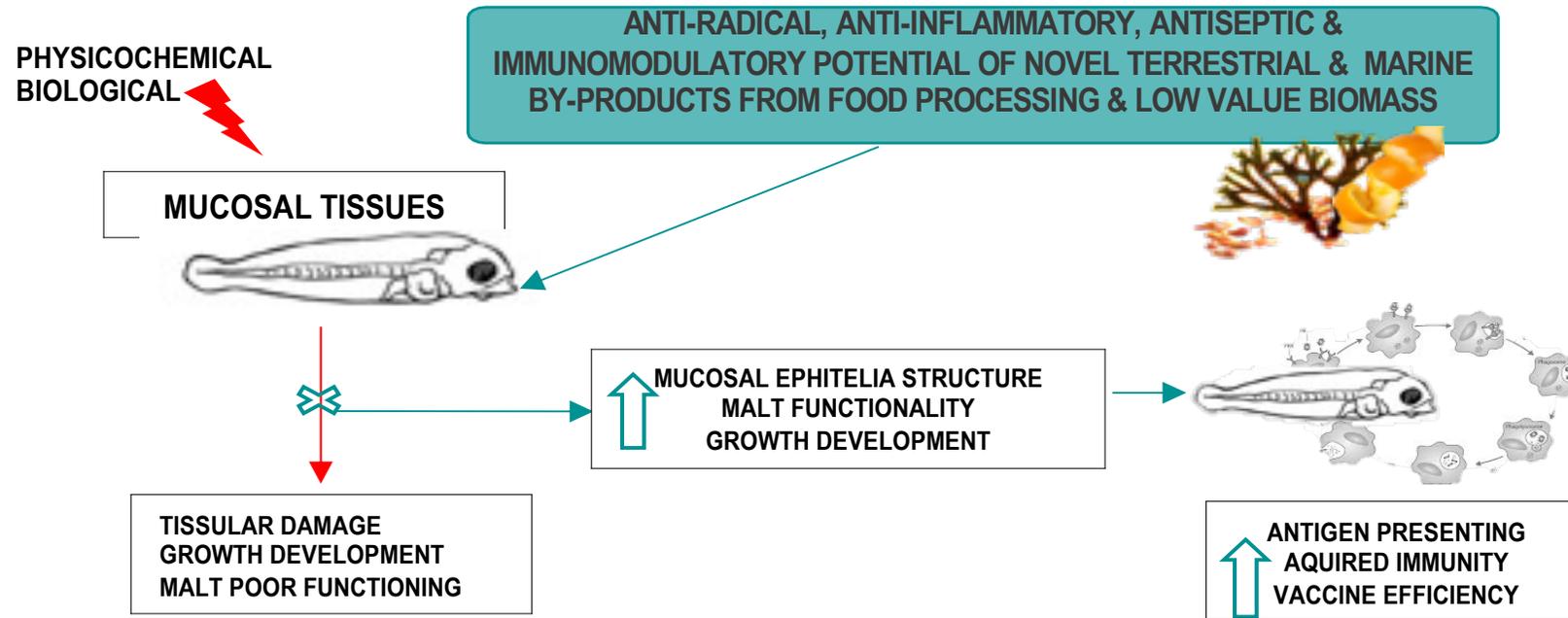
+FPI grant holder

Work Team:

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HYPOTHESIS



The protection of mucosal tissues and their MALT, including T, B cells and antigen presenting cells, by the use biotechnological additives obtained from terrestrial and marine food-processing by-products or from low value biomass, with anti-radical, anti-inflammatory, antiseptic and immunomodulatory properties, will reinforce gilthead sea bream larvae health by promoting its endogenous antioxidant system and facilitating the orchestration of the acquired immunity after bath vaccination.

MAIN OBJECTIVE

The **general objective** of LARVOOST is to **determine** the potential and feasibility of:

- 1. Terrestrial and marine by-products from food-processing origin**
- 2. Value added active compounds from low value biomass**

with potential properties:

- **anti-radical**
- **anti-inflammatory**
- **anti-septic**
- **immunomodulatory**

As **sustainable functional ingredients** to **promote gilthead sea bream (*Sparus aurata*) larvae:**

- (i) growth and development**
- (ii) mucosal health**
- (iii) stress resistance**

to assess their **implications on *Photobacterium damsela* subsp. *piscicida* bath vaccine efficacy.**

SPECIFIC OBJECTIVES

Objective 1. To screen the potential of several terrestrial and marine by-products such as extracts generated from fruit peels and seeds, legumes and algae processing, **or value-add compounds from specific low biomass value origin** (tuna canning derived oils and proteins, krill oil extraction derivatives, polysaccharides from marine origin, etc.), **to protect and optimize gilthead sea bream larvae culture. The candidates will be chosen based on their biochemical composition, essential nutrients profile, bioactives composition and potential stability/bioactive in the fish feed** (feed producer and feed additives cross talking), **as well as analyzing their anti-radical, anti-inflammatory, antiseptic activities and their potential immunostimulatory capacity.**

Objective 2. For first time in marine warm water fish, to adapt and fine-tune of a TMA-based technology as a robust diagnostic method to determine via automatic image analyses (image recognition: nuclear density, chromatic density, immunohistochemical staining, etc.) **the effects of functional ingredients on several processes involved in fish development and mucosal health.**

SPECIFIC OBJECTIVES

Objective 3. Validation and dose assessment of the two selected functional additives candidates from terrestrial and marine by-products or specific low biomass value origin (objective 1) with potential anti-radical, anti-inflammatory, anti-septic activity or immunostimulatory capacity for improving gilthead sea bream post larvae culture. Both products will be included in a commercial based diet at high and a low inclusion level. Diets will be produced by Skretting, which has expressed its interest in the present project with a letter of support. Their effects on gilthead sea bream larvae growth performance, survival along the feeding trial, larvae endogenous antioxidant system capacity and biochemical composition, mucosal health (mucosal tissues structure and MALT functioning) and stress resistance will be determined.

Objective 4. To assay several feeding strategies for the potential functional additive chosen (objective 3) to achieve: gilthead sea bream larvae higher stress resistance, an improved protection of the mucosal epithelia as well as a better functionality of their MALT in terms of promoting the efficacy of the first bath/immersion vaccine against *Photobacterium damsela* subsp. *Piscicida*.

FPI PREDOCTORAL GRANT: REQUERIMENTS AND VALUABLE SKILLS

- Master in Aquaculture or Experimental Sciences
- Experience in fish larval production
- Scientific publications are desirable
- Availability to travel: based in ULPGC but stays at IRTA, Nord University & others
- Flexibility and adaptability to in the goals of the PhD

Chek it @: Ayudas para contratos predoctorales para la formación de doctores 2022:

<https://www.aei.gob.es/convocatorias/buscador-convocatorias/ayudas-contratos-predocorales-formacion-doctores-2022-0>

Deadline 26 January 2023