3. *Ghent University* in AQUAEXCEL

1. Introduction

Operating institution: *Laboratory of Aquaculture & Artemia Reference Center, Ghent University, Belgium*

Type Operating Institution: *University*

Research Infrastructure(s): *Gnotobiotic culture system for Artemia and sea bass*

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1. Gnotobiotic culture system for *Artemia* and sea bass

Name of the infrastructure: *Gnotobiotic culture system for Artemia and sea bass*

Location: *Lab of Aquaculture & Artemia Reference Center,*

Rozier 44

9000 Gent

Belgium

Web site address: *http://www.aquaculture.ugent.be/index.htm*

Contact: *Kristof Dierckens*

e-mail address: kristof.dierckens@ugent.be

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AQUAEXCEL TNA facility: *YES*

Short description The gnotobiotic set up is placed in a temperature controlled room. The set up consists of sterile falcon tubes mounted on a rotor (4 rpm). The axenic Artemia are fed axenically cultured food, such as yeasts (Saccharomyces cerevisiae wild type and strains with different cell wall composition) or axenically cultured microalgae (Dunaliella tertiolecta, Tetraselmis suecica). The axenic sea bass larvae are fed axenic Artemia nauplii or a gamma-irradiated compound diet.

Keywords Host-microbe interactions; probiotics, feed composition effects, Artemia, sea bass

Technical labs	The infrastructure is located in a temperature controlled room equipped with 2 Laminar air flow cabinets.
Processing labs	The laboratory of Aquaculture also can perform FAME and Vit C analyses. A multi-plate reader and spiral-plater are available for microbiology samples.
EU projects	Promicrobe: Microbes as positive actors for more sustainable aquaculture Pro-eel: Reproduction of European Eel: Towards a Self-sustained Aquaculture Aqua TNET III: European Thematic Network in aquaculture, fisheries and aquatic resources management ASEM: ASEM Aquaculture Platform
Number of researchers	Staff: 12 PhD students: 30
Number of technicians	5
Lodging facilities	There are several hotels in the vicinity of the laboratory.
SERVICES - scientific support	For gnotobiotic *Artemia* experiments, local staff will teach the methodology. Experiments will subsequently be performed by the visitor with the supervision and help of UGent staff. For gnotobiotic sea bass experiments, a research plan will be described by the visitor and discussed with the local scientific staff. The experiment will be executed by the local staff in which the visitor will participate.
SERVICES - electronic databases	No
SERVICES - quality assurance	Standard operating procedures for the disinfection and incubation of both Artemia and sea bass are in place. Standard operating procedures, common in microbiology labs are also applied in these facilities.
Safety and ethical issues	Disinfection methods are according to general rules for microbiology labs. Ethical framework: for tests with sea bass larvae, prior to each test, an approval of the ethical commission of the Ghent university needs to be obtained.

1.1.1. Facility Unit 1 Information [Gnotobiotic culture system for Artemia and sea bass]

Name Facility Unit 1	Gnotobiotic culture system for Artemia and sea bass
TNA	YES
Contact (Researcher)	Kristof Dierckens e-mail address: Kristof.dierckens@ugent.be phone number: ++ 32 (0)9 264 37 54
URL	http://www.aquaculture.ugent.be/index.htm
Postal Address	Lab of Aquaculture & Artemia Reference Center, Rozier 44 9000 Gent Belgium
General description	Gnotobiotic Artemia: 1 replicate: 35 mL of autoclaved artificial sea water, from nauplius till 5 days old. Gnotobiotic sea bass larvae: 1 replicate: 10 ml of filtered autoclaved artificial sea water, from egg stage till 15 DAH, 16°C.
Technical description	The replicates of both culture systems are mounted on a rotor at 4 rpm. There is no water renewal. Artemia can be fed from 24 hrs after hatching onwards. The sea bass are fed Artemia from DAH 7 onwards, but can be fed smaller items (live or dead particulate matter) from DAH 4 onwards.
Remote monitoring & control	No remote facilities available.
Water and environmental conditions	There is no water renewal.
Flowrate	No in- and outlets.
Temperature	Artemia: normally 28°C, can be adjusted

	Sea bass: normally 16°C, can be adjusted
	Temperature: controlled (Air conditioning)
Salinity	Artemia: normally 35 g/L, can be adjusted
	Sea bass: normally: 33-35 g/L
Oxygen	Not monitored
pH	Not monitored
Light intensity and wavelength	*Artemia: 2500 candela steradian* m^{-2}
	No info on wave length
	Sea bass: intensity: 10 candela steradian m^{-2}
	No info on wave length
Photoperiod	Both set ups: 24 hrs light
Fish measurements	Artemia: size, dry weight, survival, pathogen load
	Sea bass: size, dry weight, survival, re-isolation of added bacteria
	Samples of both organisms for PCR analyses of added microbial communities can be taken
Other / additional info	
Pictures/videos	

2. Modality of access

UGent can give access to these gnotobiotic set-ups under different conditions. For Artemia, access is easy and can be arranged for on a short term basis. The visitor will be assisted to a very high degree in setting up the experiment by the trained technicians. The goal and the specific experiment will be discussed with the UGent scientist. For sea bass experiments, the visitor will participate in the experiment, which will be mainly executed by local staff. A visitor will need about 5-6 weeks continuous at UGent for such an experiment (preparation and rounding off).

3. Unit of access

Experiments with bacteria-free Artemia are conducted in sterile vials mounted on a rotating device. For each experiment, we use an access unit of 50 vials for the control and the treatment. Hence, the unit of access is 50 axenic recipients.week.