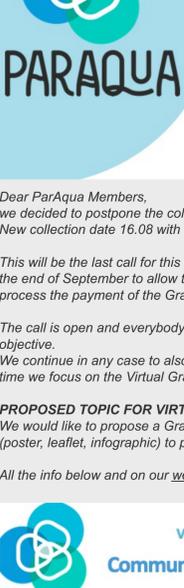


## News and Announcements



## ParAqua Grant Call open until 30.09.2022

**NEW!** Collection date  
**16.08.2022**  
With decision on **19.08.2022**  
For missions and travels until  
**30.09.2022**



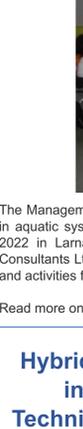
Dear ParAqua Members,  
we decided to postpone the collection date of the Grant proposals.  
New collection date 16.08 with decision on the 19.08.

This will be the last call for this Grant Period, all the missions and travels have to be finished by the end of September to allow the necessary time to send the report and documents and to process the payment of the Grant.

The call is open and everybody is welcome to propose a subject in line with the Action MoU objective. We continue in any case to also propose topics that are currently relevant for the Action, this time we focus on the Virtual Grant.

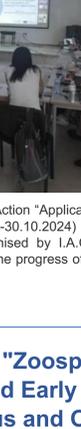
**PROPOSED TOPIC FOR VIRTUAL GRANT :**  
We would like to propose a Grant topic to support the preparation of communication tools (poster, leaflet, infographic) to promote the Grant Awarding system.

All the info below and on our [website](#) :



### Virtual Mobility Grant – proposed topic

## Communication tools for Grant Awarding system



Proposed topic in collaboration with the Grant Awarding Coordinators (Kristel Panksep and Veljo Kisand) and the Science Communication Coordinator (Ana Gavrilovic).

The objective is to prepare different communication tools (poster, leaflet, infographic) to promote the Grant Awarding system and the opportunity that can be offered.

The application should describe the proposed work to be carried out by the applicant, plan for preparation of the communication tools, expected outcomes and description of the contribution to the Action MoU objectives.

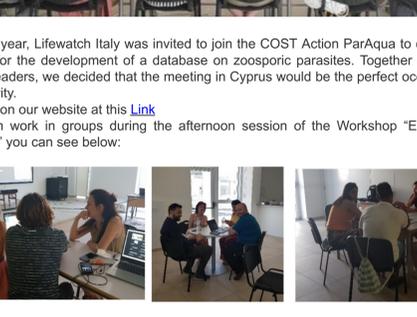
Suggested time : September 2022 (4 weeks)

More info : <https://paraqua-cost.eu/grants-open-calls/virtual-mobility/>

## CA20125 ParAqua Events

## Hybrid Management Committee Meeting (MC2) – in Larnaca, Cyprus, and online, 4 -7 July 2022

By Serena Rasconi, Ana Gavrilovic & Panayiotis Klonis



The Management Committee Meeting of the COST Action "Applications for zoospore parasites in aquatic systems" (CA20125 ParAqua, 02.11.2021-30.10.2024) held from 4th to 7th of July 2022 in Larnaca, Cyprus. The meeting was organised by I.A.CO Environmental & Water Consultants Ltd and was the opportunity to discuss the progress of the Action and the program and activities for the next year.

Read more on our website at this [Link](#)

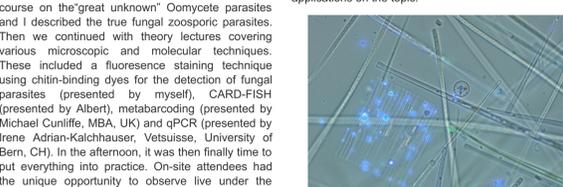
## Hybrid WG1&amp;2 Workshop - "Zoospore parasites interactive database and Early Detection Techniques" – held in Cyprus and Online, 5-6 July 2022 in cooperation with LifeWatch Italy

By Andrea Tarallo & Ilaria Rosati



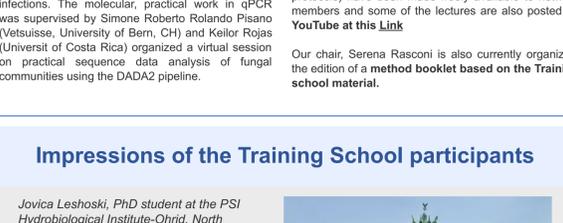
In May this year, Lifewatch Italy was invited to join the COST Action ParAqua to coordinate the WG1 task for the development of a database on zoospore parasites. Together with the WG1 and WG2 leaders, we decided that the meeting in Cyprus would be the perfect occasion to kick-off this activity.

Read more on our website at this [Link](#)  
Inserts from work in groups during the afternoon session of the Workshop "Early Detection Techniques" you can see below:



## More about Hybrid WG1 Training School "Detection Methods For Zoospore Parasites" held at IGB in Stechlin, Germany, an online on May, 16th-17th 2022

By Silke Van den Wyngaert



This May, a Training School "Detection and identification of zoospore parasites" was held in a hybrid format, hosted by Hans-Peter Grossart at IGB in Germany. After a long time of virtual meetings, 26 network members from very diverse backgrounds across Europe were finally able to meet each other "face-to-face" in the beautiful surroundings of the small village Neuglobsow near the shore of the famous Lake Stechlin. Unfortunately, due to logistic and budgetary constraints another 28 participants could not join virtually. We have managed to assemble a great team of teachers with expertise covering a wide diversity of detection techniques and taxonomic groups of zoospore parasites. To get everyone on the same page, we started with a general introduction to identification and detection techniques and an overview of the characteristics of the major taxonomic groups of zoospore parasites. Albert Reñé (ICM - CSIC, Barcelona) presented us with a beautiful and diverse group of Apicomplexa parasites, Marco Thines (Senckenberg Biodiversity and Climate Research Centre, GE) gave us a crash course on the "great unknown" Oomycete parasites and I described the true fungal zoospore parasites.

Then we continued with theory lectures covering various microscopic and molecular techniques. These included a fluorescence staining technique using chitin-binding dyes for the detection of fungal parasites (presented by myself), CARD-FISH (presented by Albert), metabarcoding (presented by Michael Cunliffe, MBA, UK) and qPCR (presented by Irene Adrian-Kalchauer, Vetsuisse, University of Bern, CH). In the afternoon, it was then finally time to put everything into practice. On-site attendees had the unique opportunity to observe live under the microscope several phytoplankton-parasite systems including several chytrids (thank you Doris Illicic), oomycetes (thank you Anthony Buayai) and perkinsids (thank you Albert Reneel).

There was time for hands-on practice with fluorescent staining and detection of chytrids from local Lake Stechlin samples and Stella Berger and Katerina Symiakaki (IGB, GE) demonstrated how this technique could potentially be combined with high throughput imaging flow cytometry to detect fungal infections. The molecular, practical work in qPCR was supervised by Simone Roberto Rolando Pisano (Vetsuisse, University of Bern, CH) and Keilor Rojas (University of Costa Rica) organized a virtual session on practical sequence data analysis of fungal communities using the DADA2 pipeline.



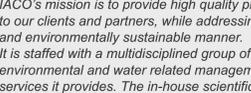
Life after the Training school event goes on. The Training school material (lecture slides and protocols) have been made freely available to network members and some of the lectures are also posted on [YouTube at this Link](#)

Our chair, Serena Rasconi is also currently organizing the edition of a [method booklet based on the Training school material](#).

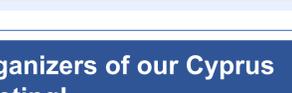
## Impressions of the Training School participants

Jovica Leshoski, PhD student at the PSI Hydrobiological Institute-Ohrid, North Macedonia:

"It was a great challenge and a fantastic experience to participate in the ParAqua - Training School "Identification and detection of zoospore parasites" held in Neuglobsow. It expanded my knowledge of qPCR and molecular methods and allowed me to progress to microscopic techniques for identifying zoospore parasites. We acquired knowledge and techniques that will further benefit us in our work. It was good training, it should have lasted longer."



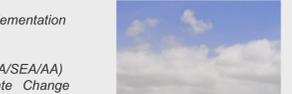
Jovica in his lab in Ohrid



New colleagues and friends: Tena Radočaj, Oliver Barić & Jovica Leshoski on the way back from the Training School

Tena Radočaj, PhD student at the University of Zagreb Faculty of Agriculture:

"The training school in Germany was very insightful and educational. We had an opportunity to learn from great teachers in well-equipped laboratories. I am grateful for the connections and friendships that I made. I only wish we had more time to absorb the information and practice the methods that were shown."



Tena and Oliver on the shore of the famous Lake Stechlin

## Let's present the organizers of our Cyprus meeting!

by Panayiotis Klonis



**Contacts:**  
Facebook LinkedIn Instagram Website

**I.A.CO Environmental & Water Consultants Ltd (IACO)** is a leading consultancy and research SME in Cyprus since 2004, specializing in the fields of environmental and water. IACO's mission is to provide high quality professional services, independent advice and support to our clients and partners, while addressing their needs in an efficient, responsible, thorough and environmentally sustainable manner.

It is staffed with a multidisciplinary group of experienced experts in different fields of environmental and water related management, aiming at providing integrated services in the services it provides. The in-house scientific team involves Civil and Environmental Engineers, Chemical Engineers, Rural and Surveying Engineers, Coastal Engineers, Hydrologists and Hydrogeologists, Biologists and Zoologists, while IACO has a pool of external associates covering ad hoc needs as according to specific project requirements. The services IACO provides can be grouped in the following general fields, with Clients being from the private or public sector, in Cyprus and abroad:

- Environmental Policy Formulation and Implementation
- Water Resources & Flood Management
- Waste & Pollution Management
- Environmental Impact Assessment (EIA/SIA/SEA/AA)
- Renewable Energy Sources and Climate Change Management
- Ecology and Protected Area Management
- Environmental Information Management
- Environmental Permitting for the Industry
- Research and Development in the above fields



Some of the latest projects that IACO has been involved include the following:

- **Water Development Department – Cyprus. Sampling, sample analysis and evaluation of the Biological Quality Elements (BQE)** for the purpose of implementation of Article 8 of the WFD. It involves sampling of Biological Quality Elements (macrophytes, diatoms, invertebrates and fish) in permanent and intermediate rivers of Cyprus and sample data analysis with a yearly evaluation of surface water body (rivers) status.



- **EUROSTARS Project Wat-Dimon – Novel DNA test for the identification of Benthic Diatoms of European Freshwater Waterbodies.** The main objective of the project is to validate a novel genomic test for the identification of European benthic diatoms (freshwater benthic algae bioindicators). A new DNA-based test, which should be routinely implemented in national environmental monitoring programs all over Europe within the Water Framework Directive (WFD) 2000/60/EC and CES standards in a near future (complementing and/or replacing the traditional ecological assessments obtained after morpho-taxonomy methodology), will be delivered. Other partners of the project are the «Laboratorios Technologicos de Levante S.L – LTL», and the "Cyprus University of Technology – CUT".

- **Erasmus+ Knowledge Alliances action Digitalisation of the water industry by innovative graduate water education – DIGIWATER.** It involves developing new, innovative and multidisciplinary approaches to teaching and learning, to stimulate entrepreneurship and entrepreneurial skills of higher education teaching staff and company staff using Innovation Camps, and to facilitate exchange, flow and co-creation of knowledge by creating inter-stakeholder courses integrating academic, corporate learning and professional development for external specialists. Our partners are consisted of six universities and six Small Enterprises: Belgium (KU Leuven and SumAqua), Germany (STEB Paderborn and Technische Hochschule OWL), Norway (Norwegian University of Life Sciences and DOSCOM), Romania (Universitatea "Dunarea de Jos" din Galati and SmartTech), Turkey (MESCIN Çevre Teknolojileri Arastirma Gelistirme Ltd. Sti. And ITU) and the European Water Association.

- **Water Development Department – Cyprus. Sampling and observation monitoring of the Natural Lakes of Cyprus.** It involves water sampling for physical parameters and data collection and analysis by associated laboratories.



## News from ParAqua Management

We welcome our new WG1 leader and co-leaders: **Albert Reñé, Andrea Tarallo & Laura Garzoli**:

CORE GROUP		
MC Chair	<b>Serena Rasconi (France)</b>	<a href="mailto:serena.rasconi@inrae.fr">serena.rasconi@inrae.fr</a>
MC Vice Chair	<b>Alena Gsell (The Netherlands)</b>	<a href="mailto:A.Gsell@nioo.knaw.nl">A.Gsell@nioo.knaw.nl</a>
WG1 leader	<b>Albert Reñé (Spain)</b>	<a href="mailto:albertrene@icm.csic.es">albertrene@icm.csic.es</a>
WG1 co-leaders	<b>Andrea Tarallo (Italy)</b>	<a href="mailto:andrea.tarallo@nanotec.cnr.it">andrea.tarallo@nanotec.cnr.it</a>
	<b>Laura Garzoli (Italy)</b>	<a href="mailto:laura.garzoli@cnr.it">laura.garzoli@cnr.it</a>
WG2 leader	<b>Ivana Trbojević (Serbia)</b>	<a href="mailto:itrbojevic@bio.bg.ac.rs">itrbojevic@bio.bg.ac.rs</a>
WG2 co-leader	<b>Hans-Peter Grossart</b>	<a href="mailto:hgrossart@igb-berlin.de">hgrossart@igb-berlin.de</a>
WG3 leader	<b>Francisco Gabriel Acien (Spain)</b>	<a href="mailto:facien@ual.es">facien@ual.es</a>
WG3 co-leader	<b>Maja Berden Zrimec (Slovenia)</b>	<a href="mailto:maja@algen.si">maja@algen.si</a>
WG4 leader	<b>Position opened!</b>	
WG4 co-leader	<b>Miloš Stupar (Serbia)</b>	<a href="mailto:smilos@bio.bg.ac.rs">smilos@bio.bg.ac.rs</a>
Science Communication Coordinator	<b>Ana Gavrilovic (Croatia)</b>	<a href="mailto:agavrilovic@agr.hr">agavrilovic@agr.hr</a>
Science Communication Coordinator Co-Leader	<b>Fusun Akgul (Turkey)</b>	<a href="mailto:fusunakgul@gmail.com">fusunakgul@gmail.com</a>
Grant Awarding Coordinator	<b>Kristel Panksep (Estonia)</b>	<a href="mailto:Kristel.Panksep@emu.ee">Kristel.Panksep@emu.ee</a>
Grant Awarding Coordinator Co-Leader	<b>Veljo Kisand (Estonia)</b>	<a href="mailto:kisand@ut.ee">kisand@ut.ee</a>
Action Moderator	<b>Bastiaan Ibelings (Switzerland)</b>	<a href="mailto:Bastiaan.Ibelings@unige.ch">Bastiaan.Ibelings@unige.ch</a>
Action Co-Moderator	<b>Dedmer van de Waal (The Netherlands)</b>	<a href="mailto:d.vandewaal@nioo.knaw.nl">d.vandewaal@nioo.knaw.nl</a>

## Recent activities of ParAqua members

## ALGAENAUTS

By Ana Sánchez Zurano and Joaquín Pozo Dengra

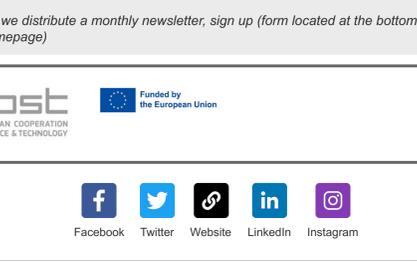
The University of Almería (SPAIN) along with Biorizon Biotech (SPAIN) and CAJAMAR Foundation participate as partners of PARAQUA COST Action, intending to develop and disseminate capacities for the identification and control of parasites that affect the algal biotech industry. In the past few months, PARAQUA members were focused on the assessment of zoospore parasites' diversity and occurrence that appear in aquatic environments, both in natural and industrial systems. These parasites influence the algae performance but they are not well known and have been scarcely studied. Since commercial microalgae production continues to expand with a widening variety of applications, the knowledge of these parasites associated with microalgae strains will gain economic interest as the lack of reliable control strategies to contain these infections. Therefore, developing simple tools to determine the presence of these organisms in algal cultures, and at the same time control their occurrence and development, has become one of the main challenges of this action.

In this context, the University of Almería, together with the company Biorizon Biotech and the CAJAMAR Foundation have much to contribute, since they collaborate on the European project ALGAENAUTS ("Eco-friendly and sustainable new family of biopesticides based on microalgae via circular economy approach", 101038250) focused on enhancing and increasing the production of new products based on selected microalgae strains in a sustainable and eco-friendly basis.



Raceway reactor located in the large scale microalgae production plant "AGORA-SABANA".

Particularly, ALGAENAUTS is not only focused on developing new microalgae-based products, but also on contributing to the current market trends that demand sustainable and environmentally friendly products. For this reason, ALGAENAUTS' targeted products are biopesticides and biofertilisers based on microalgae, totally aligned with the market demand for modern, sustainable and productive agriculture. Biorizon Biotech, leader by Joaquín Pozo and the University of Almería, leader by Prof. Gabriel Acien has been working for over 10 years in this field, being the world's pioneer and leader in developing and producing agricultural products based on microalgae



Photobioreactors located in the large scale microalgae production plant "AGORA-SABANA".

However, one of the challenges of developing a cost-effective and stable process based on microalgae involved the contamination and diseases appearing by the presence of algal predators, which strongly reduces the performance of these microalgal systems both in the facilities located at the University of Almería and the large scale microalgae production plant "AGORA-SABANA" situated in the company, consisting of three 80 m<sup>2</sup> raceways, four 800 m<sup>2</sup> raceway, one 4,000 m<sup>2</sup> and four tubular photobioreactors (12,000 L) (Figure 1, Figure 2). In this sense, the University of Almería and Biorizon Biotech will provide samples from real production systems operated with fertilizers and wastewater from different origins to the members of the PARAQUA action with expertise in detecting and identifying zoospore parasites in algal systems, contributing to the Working Group 3 "Control strategies and valorisation of research for application". Working Group 3 is trying to assemble the current practical and theoretical knowledge on ecological control strategies for parasitism risk in algal biotech (specially developed in WG1 and WG2), but also to explore the benefits of using zoospore infections as metrics in natural systems monitoring or as source material for bio-refined products.

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Tags:  
#ParAqua  
#CA20125  
#ZoosporeParasites  
#AlgaBiotech

## MESSAGE FROM OUR COST PROGRAMME

Lorna Stokes

Be sure to tag **COST** and **#COSTactions** in your social posts because we're always happy to engage:

Twitter: @COSTprogramme  
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Facebook: COST Association - European Cooperation in Science and Technology  
Instagram: @cost\_programme  
YouTube: COST - European Cooperation in Science and Technology

Newsletter: we distribute a monthly newsletter, sign up (form located at the bottom of our website homepage)



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