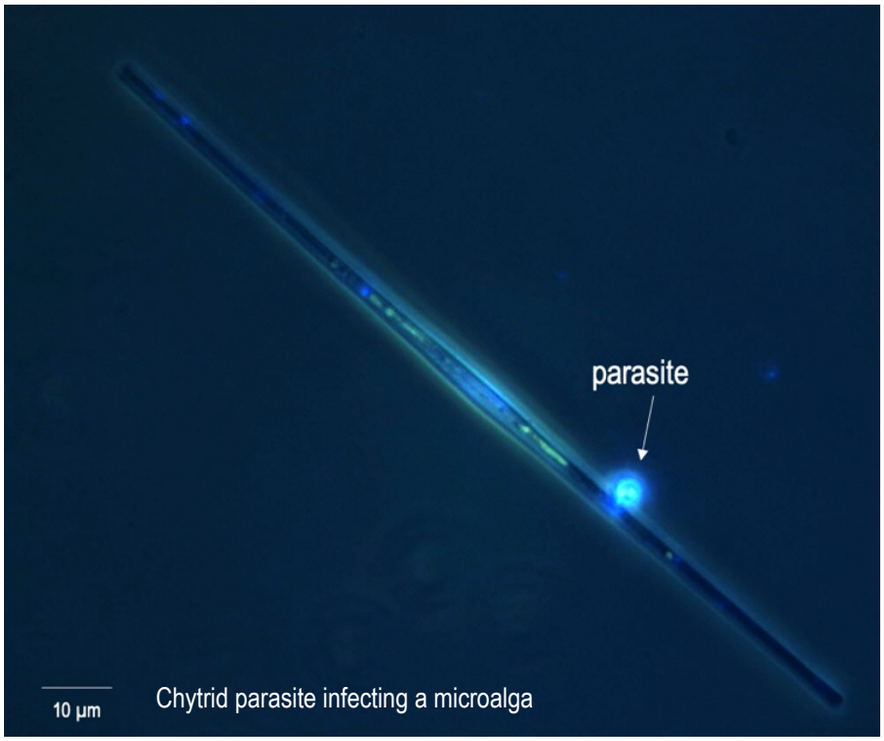
February 2023 - ISSUE #7

# NEWSLETTER



Chytrid parasite infecting a microalga

## In this issue..

PARAQUA EVENTS
Management Committee Meeting (MC3) and Stakeholder Platform – LO France, Virtual, January 2023

PARTECIPATION OF PARAQUA MEMBERS TO INTERNATIONAL CONFERENCES
Presentation of ParAqua action at the AlgaEurope 2022 conference

FROM PARAQUA STMS GRANT USERS
Great experience from Almeria

WHAT'S NEW IN PARAQUA RIO COLLECTION?
Opportunities for improving the social media marketing for the ParAqua COST Action

Feedback report from the first ParAqua hybrid meeting – with considerations on challenges and advantages of mixed events

RECENT PUBBLICATIONS OF PARAQUA MEMBERS

UPCOMING PARAQUA EVENTS
ParAqua Training School "Isolation and Drivers"

ANNUNCEMENTS and CALLS for COLLABORATIONS

CA20125- COST ACTION

PARAQUA

## ABOUT US

The main aim and objective of the Action are to organize and coordinate an innovative and dynamic Network, connecting academia, industries and water management authorities to advance and apply knowledge and expertise on zoosporic parasites (i.e. aquatic fungi and fungi-like microorganisms) and the relation with their hosts in natural ecosystems and industrial algal biotech production.

## WEBSITE

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# ParAqua events

## Management Committee Meeting (MC3) and Stakeholder Platform – LO France, Virtual, January 2023

By Serena Rasconi

The first Management Committee Meeting of the new Grant Period, the third of the Action (MC3), took place on the 13th of January on Zoom. The virtual meeting was hosted by the Action Chair and co-hosted by Action Vice Chair.

The hosting team welcomed 42 participants from 17 countries. The meeting was organised following a participatory methodology and all Action MC Members and WG Members were invited to attend and participate to the discussions. Main objectives were to update and inform on Action functioning since the last MC meeting that was held in Cyprus in July 2022. After a funny ice-breaker organised by Dedmer van de Waal and the Action Moderators, the Action Chair presented the new Action participations, the budget status and the upcoming activities. WG leaders presented progress of each Working Group and the Coordinators of the Grant awarding Committee and Science Communication presented the updated Action documents that will be shared soon for approval by e-Vote.

In the afternoon the second stakeholder platform organised by the Action took place. The meeting started with a presentation by Maja Berden Zrimec, WG3 Co-Leader, introducing the Action and Gabriel Acien Fernandez, WG3 Leader, introducing a survey about micro algae parasites that is diffused to all members. After Maja's and Gabriel's presentations, six new stakeholders from industry and R&D were invited to present their labs and their interest to join ParAqua. In the second part of the meeting, Gabriel Acien Fernandez (WG3 Leader) and Serena Rasconi (Action Chair) moderated a round table with invited panelists Action Members representatives of the industrial sector: Maja Berden Zrimec (AlgEn), Daniel Kurpan (Algaria), Oleksandr Holubenko (Algalif), Lisa Schüler (GreenCoLab) and Celina Pareira (A4F).

The article is also visible on the ParAqua Website News and the materials (participants list and presentations) are available in the Members area.

February, 2023 ISSUE #7

# Participation of ParAqua members in International Conferences

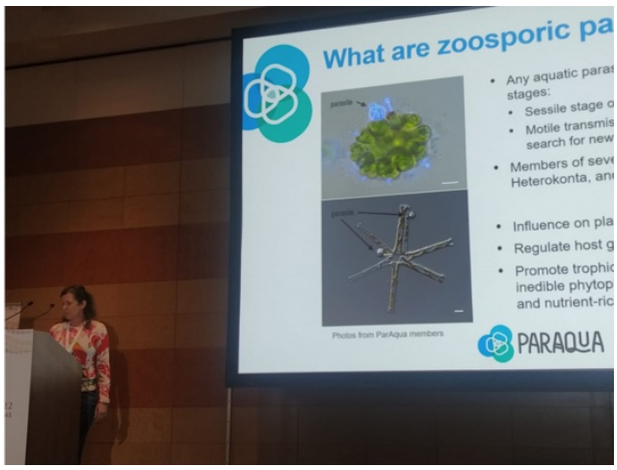
## Presentation of ParAqua action at the AlgaEurope 2022 conference

WG3 co-leader Maja Berden Zrimec from Algen, during the discussion about COST action ParAqua at AlgaEurope 2022.

By Maja Berden Zrimec

In December 2022, ParAqua WG3 leaders Maja Berden Zrimec and Gabriel Acien visited AlgaEurope conference in Rome, Italy, visited by 425 participants and 225 companies from 44 countries. Our ParAqua presentation was very well received and started an interesting discussion about the possibilities our action brings to the algae production area. For example, there was an interest about the utilisation of zoosporic parasites as a controlling agent for microalgae infections in macroalgae production. There was also a discussion about utilisation of spores for products.

Many delegates were interested if we can help them with specific infection problems in their cultures (from laboratory to open-cultivation ponds).Few delegates discussed symbiotic relationships of algae with other microorganisms, stressing the importance of cooperation between microorganisms. On the basis of COST ParAqua consortium It has been agreed during discussion that more input from studies of natural processes is needed in the algae biomass production sector. The conference participants also agreed that algae production sector should be more connected with environmental studies, as is the case in the ParAqua COST action. This way, the advancing of the sector could be more profound. We loved speaking to everyone and thank the conference participants for their interest.




On the left: WG3 leader Gabriel Acien from Univeristy of Almeria, Spain, presenting at the Menthors' evening at AlgaEurope 2022. On the right: WG3 co-leader Maja Berden Zrimec from Algen, presenting COST action ParAqua to the participants of AlgaEurope 2022

February, 2023 ISSUE #7

IFAPA Research Center of the University of Almeria

# From ParAqua STSM Grantees

## Great experience from Almeria

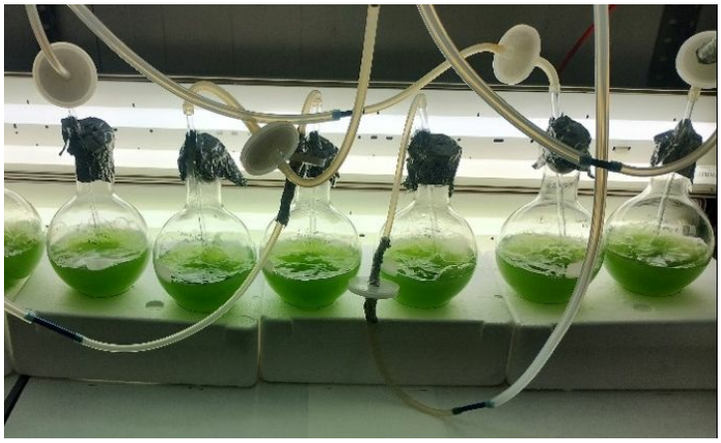
By Daniel Pousa Kurpan Nogueir

My research at Università degli Studi di Milano in collaboration with the Spirulina producing company Algaria Srl (Italy) has been addressing to optimize the operational conditions of a mass cultivation system. For quite some time, we have been talking to Prof. Gabriel Acién and foreseeing a potential university-company partnership. ParAqua COST Short Term Scientific Mission (STSM) allowed the beginning of such fruitful network.

Daniel Pousa Kurpan Nogueira

I am very proud and happy to be currently at the IFAPA Research Center - University of Almeria and enjoying the structure and expertise of Prof. Gabriel Acién's group. We are investigating a temperature control system, different harvesting methods, and growth medium management as drivers for contamination, productivity fluctuations, and their effects on the overall welfare of a mass culture. More specifically, one of the research projects carried out here intends to correlate the production of extracellular polymeric substances (EPS) from Spirulina with (potentially fungal) contamination. Purification, isolation, and characterization of EPS are some of the techniques being disseminated by this STSM.

During my scientific career, I have had the opportunity to visit some universities/research centers around the world and, still, I am amazed by the infrastructure and hospitality of the city and University of Almeria. All my questions and needs were (and still are) promptly resolved by the ParAqua members here, so I can stay really focused on my studies. Hence, I strongly recommend everyone to apply for STSMs. Science, thank you!



Part of research facilities of the University of Almeria

February, 2023 ISSUE #7

# What's new in ParAqua RIO Collection?

## Opportunities for improving the social media marketing for the ParAqua COST Action

By Oliver Barić

Abstract
Since the creation of ParAqua social media pages, the number of page likes and follows has been

## Feedback report from the first ParAqua hybrid meeting – with considerations on challenges and advantages of mixed events

By Serena Rasconi

Abstract
The fist hybrid meeting and workshop of the COST Action "Applications for zoosporic parasites in aquatic systems" was held from 4th to 7th of July 2022 at the Multifunctional Center for Social Activities and Welfare of the Larnaka Municipality in Larnaca, Cyprus. 22 participants from 11 countries and 15 institutions attended on site, 26 participants from 9 countries and 26 institutions attended online. The activities included presentations, open discussions and collaborative work. This report presents the results of the feedback survey send to participants after the event. The survey was anonymous and included multiple choice responses (checkboxes) and short answers to complete and provide arguments to the checkboxes answers. 16 surveys were collected from the 54 participants, 13 from onsite and 3 from virtual attendees. Based on feedbacks and comments from the participants, the report will also include some considerations on challenges and advantages of mixed events.
The report will contribute to set-up an active network and effective communication strategy for ParAqua, by describing advantages and limitations of different settings based on the Action experience and provide tips and hints to foster collaboration and effective work in hybrid mode.

Read More

tracked. After reaching a sufficient number of followers, an analysis was performed to begin the tracking of meaningful metrics. For Facebook and Instagram, an integrated analytics tool was used, and for Twitter and LinkedIn the metrics are analyzed in less detail since no integrated analytics tools were available. The role of each social media platform was discussed depending on the platform`s characteristics, dominant groups among the followers, and strategies applied by other organizations.
A list was made containing conferences and workshops in the near future. The scientific interests of the Action members have been taken into consideration while creating the list, so it contains a somewhat broad specter of events, but is still related to the Action`s mission. Only those events whose deadline for submission hasn't passed were selected. The conferences are divided into two tables depending on whether they are taking place in or outside of Europe and arranged in chronological order.
Acknowledgement: This work is supported by COST Action ParAqua Virtual Mobility Grant

Read More



## Mucilage protects the planktonic desmid Staurodesmus sp. against parasite attack by a chytrid fungus

By Silke Van Den Wyngaert

In a new study, we provide experimental evidence that a mucilage envelope can protect the desmid Staurodesmus sp. against chytrid infection by acting as a physical barrier. In addition to the mucilage defense barrier, we demonstrate the

# Recent publications of ParAqua members

ability of both Staurastrum sp. and Staurodesmus sp. to resist infection. To our knowledge, this is the first study showing that a phytoplankton host can resist to its chytrid parasite while still remaining viable and being able to reproduce and thus recover from an infection. The presented work provides novel insights into phytoplankton defense traits against fungal parasites and extends our view on the functional role of mucilage in phytoplankton.

Van Den Wyngaert, S., Kainz, M.J., Ptacnik, R. (2023) Mucilage protects the planktonic desmid Staurodesmus sp. against parasite attack by a chytrid fungus. Journal of Plankton Research, 45 (1): 3–14

Link to pubblication

## Interactions between chytrids cause variable infection strategies on harmful algal bloom forming species

By Thijs Frenken

We published a nice new paper on harmul algae which may be of interest for you:

McKindles, K.M., McKay, R.M.L., Bullerjahn, G.S., Frenken, T. (2023). Interactions between chytrids cause variable infection strategies on harmful algal bloom forming species. Harmful Algae, 122: 102381

Link to pubblication

## Metagenomics and metabarcoding experimental choices and their impact on microbial community characterization in freshwater recirculating aquaculture systems

By Irene Adrian-Kalchhauser

You might be interested in our new paper:

Rieder, J., Kapopoulou, A., Bank, C., Adrian-Kalchhauser, I. (2023). Metagenomics and metabarcoding experimental choices and their impact on microbial community characterization in freshwater recirculating aquaculture systems. Environmental Microbiome 18 (1):8.

Link to pubblication

## Environmental refuges from disease in host–parasite interactions under global change

By Alena S. Gsell

Gsell, A. S., Biere, A., de Boer, W., de Bruijn, I., Eichhorn, G., Frenken, T., ... & Van de Waal, D. B. (2023). Environmental refuges from disease in host-parasite interactions under global change. Ecology, e4001.

Link to pubblication



# Upcoming ParAqua events

## ParAqua Training school "Isolation and Drivers"

By Ivana Trbojević

PARAQUA

**Where:** Belgrade, Serbia
**When:** 3rd and 4th of April 2023
**Attendance:** virtual or on-site

**Target group:** students, young researchers and innovators, water quality managers and microalgae biotechnology engineers

**Organization Comittee:**

Ivana Trbojević (local organizer, University of Belgrade, Serbia)
Serena Rasconi (co-organizer, INRAE, France)
Hans-Peter Grossart (co-organizer, IGB, Germany)
Silke Van den Wyngaert (co-organizer, University of Turku, Finland)
Albert Reñé (co-organizer, ICM-CSIC, Spain)

**LECTURES AND PRACTICAL SESSIONS ON:**

Isolation of zoosporic parasite strains and their characterization
Algal-parasites cultivation and conservation (culture collections)
Methods to investigate drivers of zoosporic parasite infections

**TEACHERS:**

- **Jurica Jug-Dujaković**, Sustainable Aquaculture Systems L.t.d., USA (now reprentative in Croatia), advisor at M.J.D. Consulting d.o.o., Croatia
- **Ana Gavrilović**, University of Zagreb Faculty of Agriculture, Croatia
- **Silke Van den Wyngaert**, University of Turku, Finland
- **Caio Cesar Pires de Paula**, Biology Centre CAS, Czech Republic
- **Dagmara Sirova**, Biology Centre CAS, Czech Republic
- **Gabriel da Cunha Bombo**, GreenCoLab, Portugal
- **Alena Gsell**, Netherlands Institute of Ecology (NIOO-KNAW), Netherlands
- **Serena Rasconi**, INRAE CARRTEL, France
- **Cristina Paulino**, GreenCoLab, Portugal

# Events news from members

## Save the date for the LifeWatch ERIC BEeS Conference!

By Andrea Tarallo

The LifeWatch ERIC "BEeS" Biodiversity & Ecosystem eScience Conference, on the theme of "Threats and challenges to biodiversity and ecosystem conservation from an eScience perspective", will take place in Seville from 22–24 May, to mark UN Biodiversity Day. While principally aimed at members of the LifeWatch ERIC national nodes, this is also a fantastic opportunity for members of the wider biodiversity and ecosystem research community to meet and get to know each other better face-to-face. Interested persons can visit the dedicated minisite which will be regularly updated with information. Registration and abstract submission are open, with seven different sessions to choose from.
Submission deadline: 30 April.

# Announcements and calls for collaborations

## Call for contribution: Developing a protocol for motion analysis of zoosporic parasites within the ParAqua Action

By Sławomir Cerbin

We are developing a methodological protocol to provide basic guidelines to private and public entities, that will explain step by step and troubleshoot how to use different microscopy cameras and software to obtain movies, and save them in a format which can be used for further analysis in open software like Fiji. The protocol is a follow up of the previous ParAqua workshops. We need your help in order to make this protocol as universal as possible. Please share your info about the microscopes, cameras, software, type of movie formats and image analysis platforms you use for recording and analyse movies.

For your convenience you can provide the information via this form:
Link
It will take only a few minutes.

If you are further interested to collaborate on the protocol please contact Slawek Cerbin or Carlotta Lupatelli

EMAIL SLAWEK

EMAIL CARLOTTA

## Coming Soon: The ParAqua Podcast!!!!!

By Joe Money

This podcast will offer you the chance to listen to one on one interviews with scientists from around the world doing cutting edge research in the fields of Aquatic Biology and Parasitology. We are aiming to publish Episode 1 in Spring 2023.

If you want to get involved with the podcast production or would be happy to be interviewed about your work please contact Joy for further details here:

EMAIL JOE

## Call for collaboration from Institute for Fish and Wildlife Health

By Irene Adrian-Kalchhauser

We have generated a large set of metagenomics data, aquatic environment, hundreds of samples with time and space resolution. We welcome collaborations to probe the set for specific aspects.
Currently covered are prokaryotic evolution, phages, and prokaryotic functions. We would particularly welcome experts for fungi, but are open to discussion for other areas.
Get in touch describing your interest and expertise and expectations towards such a collaboration!
If you are interested contact dr. Irene Adrian-Kalchhauser or our website

EMAIL IRENE

# News from ParAqua Management

## ParAqua Contact Point

**Elodie Babu**

Please contact Elodie for your questions related to refunding and working modalities for Activities participation

**elodie.babu@inrae.fr**

PARAQUA

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| PARAQUA | Main Contacts and Leadership | |
|---|---|---|
| **MC Chair** | **Serena Rasconi (France)** | **serena.rasconi@inrae.fr** |
| MC Vice Chair | Alena Gsell (The Netherlands) | A.Gsell@nioo.knaw.nl |
| **WG1 leader** | **Albert Reñé (Spain)** | **albertrene@icm.csic.es** |
| WG1 co-leaders | Andrea Tarallo (Italy)<br>Laura Garzoli (Italy) | andrea.tarallo@nanotec.cnr.it<br>laura.garzoli@cnr.it |
| **WG2 leader** | **Ivana Trbojević (Serbia)** | **itrbojevic@bio.bg.ac.rs** |
| WG2 co-leader | Hans-Peter Grossart (Germany) | hgrossart@igb-berlin.de |
| **WG3 leader** | **Francisco Gabriel Acien Fernandez (Spain)** | **facien@ual.es** |
| WG3 co-leader | Maja Berden Zrimec (Slovenia) | maja@algen.si |
| **WG4 leader** | **Position opened!** | |
| WG4 co-leader | Miloš Stupar (Serbia) | smilos@bio.bg.ac.rs |

| | | |
|---|---|---|
| **Science Communication Coordinator** | **Ana Gavrilovic (Croatia)** | **agavrilovic@agr.hr** |
| Science Communication Coordinator Co-Leader | Fusun Akgul (Turkey) | fusunnakgul@gmail.com |
| **Grant Awarding Coordinator** | **Kristel Panksep (Estonia)** | **Kristel.Panksep@emu.ee** |
| Grant Awarding Coordinator Co-Leader | Veljo Kisand (Estonia) | kisand@ut.ee |
| **Action Moderator** | **Bastiaan Ibelings (Switzerland)** | **Bastiaan.Ibelings@unige.ch** |
| Action Co-Moderator | Dedmer van de Waal (The Netherlands) | d.vandewaal@nioo.knaw.nl |
| **Young Researchers and Innovators Forum Coordinator** | **Jovica Leshoski (North Macedonia)** | **jleshoski@hio.edu.mk** |



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## TAGS

#ParAqua
#CA20125
#ZoosporicParasites
#AlgaBiotech

# A MESSAGE FROM COST PROGRAMME

by Lorna Stokes

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

Twitter: @COSTprogramme
LinkedIn: COST Association - European Cooperation in Science and Technology
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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