

Non-Conventional Yeasts for the Production of Bioproducts

Events

“One amazing week sharing lectures, discussions and hands-on laboratory work in our Fermentation core laboratories with a bunch of very enthusiastic early stage researchers and colleagues from all over Europe”

1st Training School in Denmark

The first training school of the Yeast4Bio Action “Basic course on fermentation technology for production of high-value chemicals from sugar platform by non-conventional yeast” was held in the Technical University of Denmark from 13th to 17th September 2021, organized by José L. Martínez, Associate Professor and Head of Fermentation core, DTU Bioengineering.

Hosting the 1st Training School

by **José Luis Martínez**

I had the great pleasure of hosting the 1st Training School of our Yeast4Bio COST action, a basic course on Fermentation Technology, at the Technical University of Denmark by mid-September. The challenge was high, because the COVID restrictions across Europe were still tight in several places and we were a bit hesitant about being able to have full physical attendance to the course, although I was positive that the training school would finally materialize as we wanted. Luckily for all, organizers and participants, it happened as planned. And honestly I could not be happier with the experience: one amazing week sharing lectures, discussions and hands-on laboratory work in our Fermentation core laboratories with a bunch of very enthusiastic early stage researchers and colleagues from all over Europe.



Events

“All the participants were engaged and very proactive, making it a huge success.”

It was an extremely satisfactory and wonderful experience, not only because we could held an “in-person” meeting after almost one and a half year of virtual meetings and conferences, but also because all the participants were engaged and very proactive, making it a huge success. On top of the scientific discussions, we had the chance to spend some quality time together enjoying some sightseeing around the wonderful city of Copenhagen and the “hyggeligt” (the Danish adjective for “cozy and comfortable”) cafés around the city center.

All in all, we (the organizers and the rest of teachers) had the feeling that the next great COST action idea will come up from some of these wonderful people attending to this training school, and that future collaborations will arise from one of the many pleasant moments of conversation around a coffee and a Danish pastry that we shared during the course”.

3rd MC and 3rd WG Meetings at University of A Coruña (Spain)

by **Christian Kennes**

After some recent on-line meetings due to the pandemic COVID19 situation, the 3rd MC meeting and the 3rd WG meeting were jointly organized on September 28 - 29, 2021, in La Coruña (Spain). This was the first time we were again able to celebrate this as a face-to-face meeting since the previous event of March 2020 in Budapest. Besides being highly fruitful from a scientific point of view, with extremely interesting and innovative presentations, the meeting was also joyful from a personal point of view, with the opportunity to again meet colleagues and friends. Concerning the scientific part, more than 35 members of the action attended on-site, while roughly the same number of scientists attended on-line, thus reaching a highly satisfactory level of participation. The high-quality oral presentations were followed by short, very constructive, discussions. Everything proceeded very smoothly and I would, therefore, also like to take advantage of this opportunity to thank my collaborators and PhD students for their involvement in converting this into a successful event. Thanks also to Elia, our Action coordinator, for providing us the opportunity to celebrate the meeting at our Institution. From a personal standpoint, besides the productive coffee-breaks, the near absence of pandemic restrictions allowed to organize joint lunches as well as some informal dinner downtown in the old city with, typical local food, seafood, and drinks.

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Career development, individual mobility

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“During my STSM I learned a lot about the bioreactor technology and improved my fermentation skills.”

Short Term Scientific Missions

STSM-Coordinator: **Susana Marques**

Regarding Short Term Scientific Missions (STSMs) in COST Action YEAST4BIO, this activity has been actively running in 2021 after some delays during 2020 due to restrictions to mobility imposed by COVID 19 outbreak. Indeed, three calls were launched in the 2nd GP (ended by October 2021) and eleven applications have been submitted and approved that would spend the whole budget foreseen for STSMs in this 2nd GP. By the end of this period, ten of these applications have successfully been completed and one visit has been cancelled.

Experiences of completed STSMs

by **Joel Akinola** and **Soma Bedő**

PhD candidate at University College Cork (Ireland), Joel Akinola, obtained a Short Scientific Mission (STSM) grant to Technische Universiteit Delft (Netherlands). His mission was to develop a CRISPR tool for simultaneously introducing multiple copies of functional genes into the genome of *Kluyveromyces marxianus*, a non-saccharomyces ascomycetous yeast that attracts industrial interests due to its thermotolerance and ability to metabolise diverse carbon sources. He successfully devised and applied the tool to the development of a yeast strain that produces useful plant chemicals with applications in the food, pharmaceutical and nutraceutical industries.

I spent my STSM in CIEMAT Research Institute, Madrid, Spain. The lipid accumulation and carotenoids production of the non-conventional yeast *Rhodospiridium toruloides* was investigated. Different fed-batch strategies were set to maximize the lipid accumulation and carotenoids production on model and horticulture media. During my STSM I learned a lot about the bioreactor technology and improved my fermentation skills. Moreover the obtained promising results provides the further work with the host institute.



Career development, individual mobility

“I feel lucky to have had the opportunity to attend to this training school.”

“It was not just about professional competence, new acquaintances hopefully set the start for the future collaborations and friendships.”

ITC Conference Grants

ITC Conference Manager: **Hana Sychrova**

ITC Conference Grants are aimed at supporting PhD students and Early Career Investigators (ECI) from Participating Inclusiveness Target Country (ITC) to attend international science and technology related conferences, event or activity on the topic of the Action that are not specifically organised by the COST Action. The attendance should be accompanied by an active presentation of research results related to the Yeast4Bio COST Action. For more information on conditions and application procedure, consult <https://yeast4bio.eu/itc-conference-grants/>

Experience of students in 1st Training School

by **Angela Coral Medina** and **Gintare Liudziute**

The YEAST4BIO 1st training school was such a nice experience. It was one busy week where I had the opportunity to meet new people, learn about non-conventional yeasts fermentation, and see the beautiful Copenhagen. 5 days were enough to really acquire expertise on fermentation, by having lectures during the mornings and practical part during the afternoons at the laboratories of the Bioengineering Department of DTU. The group of participants was great, all working with different yeasts but interested in the fermentation process. My regards also go to the trainees and the organizers for the guidance and support. I feel lucky to have had the opportunity to attend to this training school.

This training school gave me an opportunity to gain fundamental intelligence in non-conventional yeast fermentation design and analysis. Even though I had a bit of a background in fermentation, a few problems that appeared during cultivations also let me to understand the mistakes and possibly avoid them in the future experiments. I believe that in the future it can help improve the use of different kinds of waste to get high-value compounds production by the meaning that it would increase the circular economy. And of course, it was not just about professional competence, new acquaintances hopefully set the start for the future collaborations and friendships.



Dissemination, achievements

“A majority of the articles in the special issue features authors from different institutions or countries, illustrating the collaborative and networking ethos of COST Actions.”



“The issue contains seven review articles covering a range of topics related to non-conventional yeasts.”

Connection with other COST Actions

by **Elia Tomás Pejó**

YEAST4BIO chair, Elia Tomás, was invited to give an overview of the action activities and objectives in the 9th Acidic Friday that took place online on the 15th of October 2021. This series of seminars are organized monthly by the EuroMicroPH CA18113 COST Action and usually two invited speakers give talks related with the COST Action activities and objectives. In this case, Elia's presentation was followed by a discussion on possible interaction between both COST actions (YEAST4BIO and EuroMicroPH).

Special issue in FEMS Yeast Research

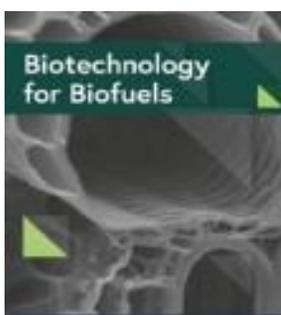
by **John Morrissey**

In February 2022, FEMS Yeast Research (FEMS^{YR}) <https://academic.oup.com/femsyr> will publish a special issue featuring the Yeast4Bio COST Action. FEMS^{YR} is published by the Federation of European Microbiology Societies (FEMS) and is the journal of the yeast research community. The idea of a special issue was raised at our last pre-lockdown meeting in Budapest (March 2020) and it is exciting to now see the plans come to fruition. The issue contains seven review articles covering a range of topics related to non-conventional yeast (NCY). Yeast covered include *Komagataella phaffii*, *Kluyveromyces marxianus*, *Zygosaccharomyces bailii* and *Yarrowia lipolytica*, and topics range from databases, formation of hybrids, protein secretion, lipid synthesis for biotechnology, production of volatiles, and more. All are tied together with a perspectives article led by the Action chair, Elia Tomas. That article presents an overview of the themes and aims of the Action and will provide a comprehensive view of future directions for non-conventional yeast related to biotechnology. A majority of the articles in the special issue features authors from different institutions or countries, illustrating the collaborative and networking ethos of COST Actions.

Most of the articles are already published and available under open access licences and once the issue has its official launch in February 2022, all eight articles will be free to read without restrictions for three months. In any case, 12 months after publication, all FEMS^{YR} articles are free to read for all. It is fitting that the first major joint dissemination output from the Yeast4Bio Action is published in a Society journal as scientific societies are crucial to support the community and especially early career researchers, also an aim of COST Actions. These articles in this special issue should be of great interest to the research community and are already acting as an impetus for further collaboration amongst members of the Action.

Dissemination, achievements

“Collectively, we envision that the articles will show both the breadth and the depth of research within the YEAST4BIO COST Action and exemplify the current challenges, improvements and possibilities within the field.”



BMC

YEAST4BIO Thematic Series in Biotechnology for Biofuels and Biochemicals

by Guest Editors **Cecilia Geijer** (Chalmers University of Technology, Sweden), **Elia Tomás-Pejó** (IMDEA Energy, Spain) and **Antonio D. Moreno** (CIEMAT, Spain).

We are happy to let you know that we have received a lot of interest from our community to publish in the YEAST4BIO Thematic Series in Biotechnology for Biofuels and Biochemicals.

In this special collection, articles within YEAST4BIO-related research areas will be presented. The articles will focus on biomass fractionation and hydrolysis, NCY cultivation and fermentation as well as NCY characterization and development through molecular biology, genetics and physiology studies. Collectively, we envision that the articles will show both the breadth and the depth of research within the YEAST4BIO COST Action and exemplify the current challenges, improvements and possibilities within the field. The full scope of the thematic series can be found here: <https://www.biomedcentral.com/collections/yeastbioproducts>

Submissions of original Research Article, Methodology and Review papers will be included upon invitation only from the Guest Editors. Please submit via journal online submission system and indicate during submission that you are submitting to the Non-conventional yeast-based processes for conversion of renewable feedstocks into bioproducts collection. All manuscripts received will be subject to editorial triage and peer review as is standard for the journal. Articles will be published continuously in the main journal and highlighted on the collection homepage as soon as they are ready.

Please note that everyone interested in submitting a manuscript to the special collection is more than welcome to do so before the deadline of 30th of April 2022. However, waivers of publishing fees will only be distributed among those authors that registered their interest to publish before 31st of October 2021.

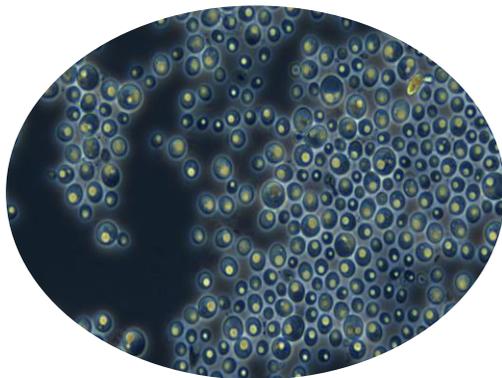
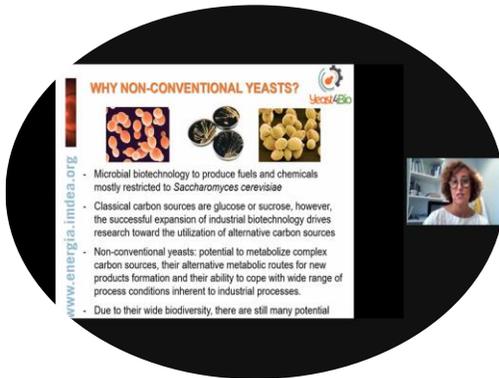
Planned events

Training School on *Metabolite profiling approaches in non-conventional yeasts* is planned for 7th-9th of September, 2022. It will be organized by Dr. Rodrigo Ledesma-Amaro and Prof. Paul Fraser in Royal Holloway University of London (United Kingdom).

The 4th WG meeting is planned for 26th and 27th of April, 2022 in Bari (Italy). It will be organized by Prof. Gennaro Agrimi.

The 5th WG meeting and 4th MC meeting are planned for 20th and 22nd of September, 2022 in Prague (Czech Republic). It will be organized by Dr. Hana Sychrová.

Moments in the Action



How to find us

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For more information about the Yeast4Bio COST Action, please visit our website and follow our social media profiles.



Webpage: <https://yeast4bio.eu/>

Twitter: <https://twitter.com/yeast4bio>

LinkedIn: <https://www.linkedin.com/company/yeast4bio-project>

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This information is based upon work and activities from COST Action Yeast4Bio: Non-Conventional Yeasts for the Production of Bioproducts, supported COST (European Cooperation in Science and Technology).

Funded by the European Union.

COST description

COST (European Cooperation in Science and Technology) is a funding agency for research and innovation networks. Our Actions help connect research initiatives across Europe and enable scientists to grow their ideas by sharing them with their peers. This boosts their research, career and innovation. <https://www.cost.eu/>

