



# WORLD FEDERATION FOR CULTURE COLLECTIONS Newsletter (No. 55)—JULY 2018



## NEWS FROM THE PRESIDENT

Dear Members,

Kind greetings from Australia and I am happy to present our second newsletter since the election of the new board and report on our activities.

Firstly, I would like to thank all the members who have been part of our committees over many long years and contributed immensely towards the mission of the WFCC. These committees were [1] Biodiversity, [2] Education and Capacity Building, [3] Endangered Collections, [4] Patents, [5] Postal, Quarantine and Safety Regulations and [6] Publications and Publicity. Since most members have retired we have now decided to call for new members and restructure the committees in line with the current global developments ranging from legislative aspects e.g. the Nagoya Protocol to molecular advances used to map true diversity e.g. metagenomics. I kindly invite our members to communicate with us and nominate members who might like to be part of this process. We also invited world experts to take part in the "Advisory Panels". Please refer to our web site to identify them. Their expertise is of significance in terms of systematics <http://www.wfcc.info/bacterialSAP/> and industrial culture collections <http://www.wfcc.info/industrialCCAP/>.

Secondly, I am happy to report that the World Data Centre of Microorganisms (WDCM) jointly with us has initiated the 10K Type Strain Sequencing Project, Global Catalogue of Microorganisms, to provide free of charge service to taxonomists for standard genome sequencing and annotation. Currently, the genomes of about 6,300 of the ~15,200 type strains have been sequenced, accordingly, by joining the forces with the Community Sequencing Program of DOE-JGI for a new Genomic Encyclopedia of Bacteria and Archaea (GEBA) we now target to genome sequence the remaining un-sequenced and non-pathogenic type strains to complete the full understanding related to the genetic make-up and biosynthetic powers of these microorganisms. For more information on the project see also Linhuan Wu, Kevin McCluskey, Philippe Desmeth, Shuangjiang Liu, Sugawara Hideaki, Ye Yin, Ohkuma Moriya, Takashi Itoh, Cha Young Kim, Jung-Sook Lee, Yuguang Zhou, Hiroko Kawasaki, Manzour Hernando Hazbón, Vincent Robert, Teun Boekhout, Nelson Lima, Lyudmila Evtushenko, Kyria Boundy-Mills, Boyke Bunk, Edward R B Moore, Lily Eurwilaichitr, Supawadee Ingsriswang, Heena Shah, Su Yao, Tao Jin, Jinqun Huang, Wenyu Shi, Qinglan Sun, Guomei Fan, Wei Li, Xian Li, Ipek Kurtböke and Juncai Ma (2018). The global catalogue of microorganisms 10K type strain sequencing project: closing the genomic gaps for the validly published prokaryotic and fungi species. *GigaScience*, 7(5), gij026, <https://doi.org/10.1093/gigascience/gij026>, OXFORD Academic Press.

We encourage you to be in contact with Dr. Juncai Ma and contribute towards the identification of the type strains that require further investigation to ensure their true identity and integrity.

We have also been active at the participation of various conferences around the world ranging from Austria to Thailand to Malaysia. Prof. Gürlér in Turkey has also organized the 1st MEBAC and the WFCC will take part as an observer at this conference. Details are presented in this newsletter. The 15th Asian Consortium for the Conservation and Sustainable use of Microbial Resources will take part in Mongolia in early October 2018. As you know our next ICCC conference will be in Chile, chaired by Prof. Cledir Santos in 2019. He has been working hard on the planning and execution of the conference and we look forward to seeing you in Chile next year.

We again invite you to be in touch with us regularly, send us your news, regional events taking place in your surroundings as well as event pictures. Also forward your nominations for the Skerman Award to be awarded next year in the ICCC'15 in Chile.

Again, on behalf of the Executive Board and myself I wish you a happy holiday season. We look forward to hearing from all of you regularly to be able to attend to your needs.

With warm regards

**Dr İpek Kurtböke**  
President

## REPORTS FROM CONFERENCE PARTICIPATIONS AND WORKSHOPS

### THE 3<sup>RD</sup> ASEAN MICROBIAL BIOTECHNOLOGY CONFERENCE (AMBC) 2018: BIOECONOMY OF THE UNSEEN, 24-26 APRIL 2018, KUCHING, MALAYSIA

The 3rd ASEAN Microbial Biotechnology Conference (AMBC) 2018 officially started on the 24<sup>th</sup> of April at the Pullman Kuching Hotel, Sarawak, Malaysia. There are distinguish speakers, delegates and experts around the world joining the conference. It was an honour to have the Secretary General Ministry of Agriculture and Agro-based Industry Malaysia to deliver the keynote lecture on "Bioeconomy from the unseen". At the event four **plenary** sessions were given. Dr. Ipek Kurtböke, President of World Federation of Culture Collection (WFCC) emphasized on "The Role of Culture Collections in Biotechnological Advancements: Access to Microbial Genetic Resources and Benefit Sharing".

Dr. Lily Eurwilaichitr, Deputy Executive Director of BIOTEC, Thailand and WFCC Board Member shared her experience on "ASEAN Network of Microbial Utilization (AnMicro): Toward a sustainable bioeconomy". Prof. Dr. Long Min Tze, University Science Malaysia provided insights on "New Human Clinical Evidence of Probiotics".

Prof. Ivan Robert Kennedy, University of Sydney, elaborated on "Quality Control for Inoculant Biofertiliser Related Products". More topics about food and health, agriculture and biodiversity and biorefinery and emerging technology have been presented throughout the conference until the 26<sup>th</sup> of April.



**Dr. Ipek Kurtböke, President of the WFCC gave a plenary lecture**



**Dr. Lily Eurwilaichitr: EB of the WFCC gave the speech as the Anmicro representatives**

Hotel, Bangkok, Thailand. The aims of this conference were to, one, update the knowledge on biotechnology, food science and technology and space technology and application in the aspect of food security. Second was to strengthen networks between COST sub-committee as well as with the international institute/organization and lastly, to promote the interaction and collaboration of the researchers in ASEAN to enhance competitiveness of ASEAN with the world. The event brought ~200 experts and delegates from around the world in Food science, Biotechnology, and space technology sectors to take stock of current knowledge, share information and best practices, and build consensus on the actions most needed to move forward.



In parallel with the ASEAN NEXT conference, the International Workshop on The “next” Biobank and Bioresource Standards was also organized by Thailand Bioresource Research Center (TBRC), National Center of Genetic Engineering and Biotechnology (BIOTEC), Ministry of Science and Technology (MOST) together with National Institute of Technology and Evaluation (NITE), Institute of Microbiology - Chinese Academy of Sciences, World Data Centre for Microorganisms (WDCM), World Federation for Culture Collections (WFCC) and ASEAN Network on Microbial Utilization (AnMicro). This event aimed to identify key roles and fundamental management systems in complying with international standard to meet the concept of biobank.

Three WFCC Executive board members were invited as keynote speakers. Dr. Phillippe Desmeth from Belgian Coordinated Collections of Microorganisms, Belgium, laid major emphasis on “Culture Collection Management and International Standard” while Dr. Kyria Boundy-Mills, Phaff Yeast Culture Collection, University of California Davis, USA presented lecture on “Yeast Culture Collection: Challenges and Opportunities”. Dr. Juncai Ma from WDCM also gave a comprehensive lecture on “Microbiome”.

In addition, distinguish experts from industries such as Nestle, Singapore and Bruker Daltonics, Germany, further highlighted the important of culture collections for sustainably use of bioresource and development of commercial products.

On the second and third day, there were two parallel workshops at Thailand Science Park, PathumThani, namely the “Identification of Mito sporic fungi” and the “Effective and reliable method of microbial biotyping by MALDI-TOF Mass Spectrometry”. As a whole, this workshop on the next Biobank and Bioresource Standards gained a wide interest from public, with approximately 80 Thai and ASEAN participants joining the workshop.

Note: The ASEAN Network on Microbial Utilization (AnMicro) was established in 2014 with the goal of strengthening the ASEAN microbial biotechnology research community. Currently, AnMicro consists of members from 15 research and academic institutes across six countries, namely Indonesia, Malaysia, Myanmar, the Philippines, Thailand and Vietnam, with Thailand’s BIOTEC serving as the secretariat of the network. AnMicro empowers ASEAN research institutions and their members by promoting capacity building on bioresource utilization and management through international conferences, workshops and training courses. The ASEAN Microbial Biotechnology Conference (AMBC), organized by AnMicro members, is a biennial event that has been successfully assembling participants from the world of science and industry for discussions on microbial utilization since its inaugural meeting in Bangkok in 2014. AMBC has supported the dissemination of research findings and their transfer to collaborators and users. Moreover, more than ten joint workshops and training courses have been organized by AnMicro members to further establish research cooperation and intensify scientific exchange, especially between ASEAN microbiologists.

## ASEAN NEXT 2018 AND THE INTERNATIONAL WORKSHOP ON THE “NEXT” BIOBANK AND BIORESOURCE STANDARDS March 20-23, 2018

The international conference of ASEAN NEXT with one of the themes of “The Role of Technology on ASEAN Food Security” was jointly being organized by ASEAN Committee on Science and Technology (COST) Sub-Committee on Biotechnology (SCB), Sub-Committee on Food Science and Technology (SCFST), and Sub-Committee on Space Technology and Application (SCOSA) Thailand at the Royal Orchid Sheraton





## THIRD INTERNATIONAL CONFERENCE OF THE GLOBAL GENOME BIODIVERSITY NETWORK (GGBN-2018)

**The Global Genome Biodiversity Network (GGBN)** was formed in October 2011 and is an international network of 68 institutions that share an interest in long-term preservation of genomic samples representing the diversity of non-human life on Earth. GGBN provides a platform for biodiversity repositories from across the world to collaborate, ensuring quality standards for DNA and tissue collections, standards for genomic samples, improving best practices for the preservation and use of such collections, and harmonizing the exchange of material in accordance with national and international legislation and conventions. The preservation of the genomic diversity of the Tree of Life is a monumental and interdisciplinary task, grander than any one institution can manage alone. GGBN meets this challenge through a worldwide network of biodiversity repositories.

From the 22-25 May in Vienna, **the 3<sup>rd</sup> International Conference "GGBN 2018"** took place with the participants from countries from Europe, Africa, Asia, North America and South America. The conference focused on topics related to the exploration of the wealth of diversity that is currently stored in biodiversity biobanks worldwide. Sessions covered agricultural, forest, animal and environmental biodiversity and their characterization by state-of-the-art genomic, phenomic and molecular tools. This characterization process is a substantial part of any long-term strategy to ensure the preservation of biodiversity and thereby to secure the foundation for subsistence of mankind.

The main topics of the Conference were: 1) Biodiversity – current challenges, future chances; 2) Forest biological diversity – losses and gains; 3) Why agricultural diversity matters; 4) The hidden biodiversity; 5) Amazing animals' ex and in situ; 6) Biodiversity Biobanks: Sampling & Preservation; 7) Biodiversity Biobank Data and Analytics and ABS & Nagoya protocol.

WFCC participation was in the Session 7 – Biodiversity Biobank Data and Analytics with Dr. Jucai Ma talking about "A global catalogue of microbial genome-type strain sequencing Project of WDCM". Then in the Session 8 – ABS & Nagoya Protocol with Philippe Desmeth, as invited speaker, talking about "The CBD and its Nagoya Protocol: Need for holistic approach and constructive attitude and Manuela da Silva talking about "The Brazilian ABS legislation and the National System for Management of Genetic Heritage and Associated Traditional Knowledge". In the sequence there was the Workshop ABS & Nagoya Protocol where WFCC members also participated presenting genetic sampling workflow.



**Philippe Desmeth giving his lecture**

The General Assembly took place during the conference and the New Executive Committee nominees were indicated and accepted by the General Assembly, including Manuela da Silva as a Content Expert (ABS) and representing the culture collections.



**Manuela da Silva giving her lecture**



**Jucai Ma, Philippe Desmeth and Manuela da Silva at the end of the Conference**

## NEWS FROM THE MEMBERS NAGOYA PROTOCOL IMPLEMENTATION: THE DSMZ IS EUROPE'S FIRST REGISTERED COLLECTION

The Nagoya Protocol is a binding treaty under international law, regulating the implementation of the objectives of the UN Convention on Biological Diversity (CBD). The CBD makes biological diversity, including genetic resources, the property of the country of origin. This applies for organisms of all kinds and their components; plants and animals as well as fungi and bacteria or even just DNA (although not human genetic resources). The collection, dissemination, or use of these resources may, in turn, be restricted by the country of origin and require corresponding approval. Scientific research on an organism also constitutes a "use" under the Nagoya Protocol. The European Union's implementation of the Nagoya Protocol, Regulation 511/2014, established the concept of a Register of Collections, in which public and private



collections would demonstrate that their holdings (or parts thereof) were “Nagoya compliant”, in other words, their biological resources were legally obtained.

In March 2018, the DSMZ became the first collection in the [Register](#) and has instituted some key changes to the collection, especially in accepting new deposits. This means that the DSMZ now officially meets the requirements of the Nagoya Protocol, by taking care of two essential tasks for customers: 1) reviewing whether a biological resource falls within the scope of the Nagoya Protocol, and 2) checking if all required documents and approvals are on hand.

The DSMZ submitted a 14-page application (along with 11 supporting documents) to the German Agency for Nature Conservation (BfN) in November 2017, which was officially approved by BfN on March 18, 2018. The application took around four months to prepare by a two-person science-legal team (Dr. Amber Scholz and Dr. Hilke Püschner) and was a high priority for the DSMZ Director, Prof. Jörg Overmann. Indeed, there were significant personnel investments from quality management, scientific, and administrative staff with costs estimated around €200,000. This is an important consideration for future registered collection applicants that there are significant in-house investments that must be made to prepare an application. The application was also supported in a close partnership with the BfN.

The most significant changes to become “Nagoya compliant” were to alter procedures for handling new deposits of biological resources and establish an internal Nagoya legal review process, which included hiring a full-time lawyer. There were also considerable IT adaptations to our online deposit form, online catalogue, as well as changes to DSMZ’s terms & conditions. To understand the meaning of these changes, it is helpful to consider Nagoya compliance from two angles: entry and exit.

**Entry (new deposits):** Before deposit, the DSMZ provides depositors with an [overview](#) of what will be required for a deposit. When a new bioresource is deposited at the DSMZ the online accession form requires, among other scientific information, the depositor to detail where the strain was sampled (including GPS coordinates) and the date of sampling. Using this information, real-time information is obtained from the ABS-Clearinghouse (ABS-CH) website (via an API) that determines whether the deposit is in geographic and temporal scope of the Nagoya Protocol (NP). If so, the depositor is required to upload supporting documentation that is subsequently reviewed by the curator and legal team. If not, no documentation is required. For countries that have proactively (with the passage of legislation) granted free access to genetic resources, documentation is also not required. The legal team verifies the submitted documents by cross-checking information listed in the ABS-CH and contacting the provider country CNA to verify the documentation. If these verifications are successful, the bioresource is accepted. This procedure guarantees that our holdings are legally compliant and we can pass this guarantee on to our customers.

**Exit (purchases of bioresources):** The DSMZ online catalog offers purchasing customers an overview of each bioresource’s relevant scientific information and, since Registration, the country of origin, sampling date, and any associated documentation. If there are no Nagoya restrictions this is also posted in the catalog. DSMZ uses a Material Transfer Agreement (and accompanying Terms & Conditions) that explicitly require users to: use bioresources for non-commercial research purposes only, not distribute strains, and to adhere to the terms listed in the Nagoya Restrictions section of the catalogue. Upon purchase of a strain the user expressly agrees to the [conditions](#) during their purchase transaction. The DSMZ cannot and does not ask customers what they will do with the strains, nor do we discriminate between researchers in commercial and academic settings since only regulatory authorities (like BfN) or other international CNAs are responsible for ensuring that those users are compliant with EU Regulation 511/2014 or other national or international legislation.

The DSMZ hopes that this first step will demonstrate and generate new-found trust with provider countries and help our customers to more easily fulfil their obligations under the Nagoya Protocol.

**Dr. Amber Hartman Scholz, June 2018**

**Leibniz Institute DSMZ – German Collection of Microorganisms & Cell Cultures**

## THE US CULTURE COLLECTION NETWORK MEETING ON DATA RESOURCES AUGUST 21-23, 2018

The US Culture Collection Network meeting on data resources August 21-23, 2018 at the American Type Culture Collection facility in Manassas Virginia brings together curators and managers from diverse collections. Also participating are leaders from international and US research data communities including the US National Center for Biotechnology Information (NCBI), the Research Resource Identifier (RRID) project, iDigBio, Names for Life, and the WFCC Global Catalog of Microorganisms. With holdings that span the taxonomic breadth from algae, to bacteria and archaea, to filamentous fungi and yeast, and also including collections of plant cell cultures, plasmids, and living and once living vertebrate taxa, this meeting has a strong impact on engagement across diverse research areas.

The USCCN is sponsored by a grant from the US National Science Foundation. The USCCN held its first meeting in 2012 at the Fungal Genetics Stock Center. This marked the first time many US culture collection curators had visited a collection other than their own. Now the USCCN has held meetings at six different culture collections from Maine to California. They have collectively published four peer-reviewed manuscripts on topics as diverse as genome biology, community back-ups, and how collections are responding to the Nagoya Protocol. Further engagement with colleagues at the Ecological Society of America has led to continued leadership by the culture collection community on diverse issues focused on sustaining the infrastructure for biological research and development. Beyond these formal meetings, the USCCN has sponsored myriad activities among its participants. Participants from the USCCN attended the ICC-14 in Singapore and contributed to topics including fungal genetics, algal biotechnology, yeast lipidomics, and biosecurity. The USCCN sponsored internships where students and early-career faculty visited active collections for 2-5 days to learn about collection practices. US and Canadian scientists attended workshops at the US DOE Joint Genome Institute, the ESA Sustaining the Biological Infrastructure program, and the Phytobiomes alliance. While support for US living collections is at a transition, USCCN participants have engaged with several cross-cutting programs. Among these, the US Department of Agriculture, National Genetic Resources Advisory Council (NGRAC) will conduct a formal evaluation of microbial resources, and the US National Academy of Sciences is undertaking a survey of all living collections. These are conducted in the context of the report of the US Interagency Working Group on Scientific Collections which identified formal scientific collections of every type, from space rocks to ice cores, from micro fossils to herbaria.

Publications related to the US Culture Collection Network activities are listed below:

- McCluskey K, Barker KB, Barton HA, Boundy-Mills K, Brown DR, Coddington JA, Cook K, Desmeth P, Geiser D, Glaeser JA, Greene S. The US Culture Collection Network responding to the requirements of the Nagoya Protocol on access and benefit sharing. *MBio*. 2017 Sep 6;8(4):e00982-17.
- Boundy-Mills, K., Hess, M., Bennett, A.R., Ryan, M., Kang, S., Nobles, D., Eisen, J.A., Inderbitzin, P., Sitepu, I.R., Torok, T. and Brown, D.R., 2015. The United States Culture Collection Network (USCCN): Enhancing microbial genomics research through living microbe culture collections. *Applied and Environmental Microbiology*, 81(17), pp.5671-5674.
- McCluskey, K., Parsons, J.P., Quach, K. and Duke, C.S., 2017. An evaluation of the status of living collections for plant, environmental, and microbial research. *Journal of biosciences*, 42(2), pp.321-331.
- McCluskey, K., Boundy-Mills, K., Dye, G., Ehmke, E., Gunnell, G.F., Kiaris, H., Richmond, M.P., Yoder, A.D., Zeigler, D.R., Zehr, S. and Grotewold, E., 2017. Point of View: The challenges faced by living stock collections in the USA. *Elife*, 6, p.e24611.
- McCluskey, K., Alvarez, A., Bennett, R., Bokati, D., Boundy-Mills, K., Brown, D., Bull, C.T., Coffey, M., Dreaden, T., Duke, C. and Dye, G., 2016. The US culture collection network lays the foundation for progress in preservation of valuable microbial resources. *Phytopathology*, 106(6), pp.532-540.
- McCluskey, K., Bates, S., Boundy-Mills, K., Broggiato, A., Cova, A., Desmeth, P., DeRoy, C., Fravel, D., Garrity, G., Gasco, M.D.M.J. and Joseph, L., 2014. Meeting report: 2nd workshop of the United States culture collection network (May 19–21, 2014, State College, PA, USA). *Standards in Genomic Sciences*, 9, p.27.
- National Science and Technology Council, Committee on Science, Interagency Working Group on Scientific Collections. *Scientific Collections: Mission-Critical Infrastructure of Federal Science Agencies*. Office of Science and Technology Policy, Washington, DC, 2009 ISBN 978-0-9819500-0-6



## Portugal and Spain will host the headquarters of the pan-European Microbial Resource Research Infrastructure - MIRRI

On 26 April 2018, during a meeting in Brussels, the Assembly of Prospective Members of MIRRI ([www.mirri.org](http://www.mirri.org)) accepted the Portuguese-Spanish proposal to host the Central Coordination Unit (CCU). The approval from the seven prospective countries (Belgium, France, Greece, Latvia, Poland, Portugal and Spain), which have previously signed the MIRRI Memorandum of Understanding is, as of May 9, confirmed.

MIRRI will be established as a not-for-profit legal entity following a distributed model with a CCU accommodating the operational headquarters and the national nodes bringing together the partners and stakeholders in each member country. MIRRI will facilitate the access to a broad range of high quality bioresources and data in a legal compliant way. By offering access to human expertise and providing a collaborative platform MIRRI will support research and development in the field of biotechnology and generate solutions to societal challenges by stimulating interaction between academia and bioindustry.

MIRRI CCU will consist of two distributed sections:

- Statutory Seat located in Portugal (University of Minho, Braga)
- Collaborative Working Environment hub operated from Spain (University of Valencia, Paterna) and supported by LifeWatch-Spain, a closely related e-infrastructure.

The accepted proposal was prepared by Dr Nelson Lima, Professor and Head of the Micoteca da Universidade do Minho (MUM) from the Biological Engineering Centre, and Dr Rosa Aznar, Professor and Head of the Colección Española de Cultivos Tipo (CECT) from the University of Valencia. In addition, the Foundation for Science and Technology (FCT) from the Portuguese Ministry of Science, Technology and Higher Education, and the Secretary of State for Research and Innovation from the Spanish Ministry of Economy, Industry and Competitiveness (MINECO), supported the proposal.

After the preparatory phase (2012-2016), funded by the European Union's Seventh Framework Programme under grant agreement no. 312251, MIRRI is now entering in a construction phase. The 1<sup>st</sup> step submission for the MIRRI-European Research Infrastructure Consortium (ERIC) application is scheduled for September 2018, in view of having MIRRI legally established by the end of 2019.



## CONFERENCES/WORKSHOPS/TRAINING COURSES



UNIVERSIDAD  
DE LA FRONTERA

**BIOREN - UFRO**  
Scientific and Technological Bioresource Nucleus



Chilean Culture Collection  
of Type Strains - CCCT



World Federation for  
Culture Collections

### **15<sup>th</sup> International Conference on Culture Collections**

**- ICC15 -**

### **Building Knowledge Based Societies**

**Universidad de La Frontera, Campus Pucón, CHILE**

**25<sup>th</sup> – 29<sup>th</sup> November 2019**

The Chilean Culture Collection of Type Strains - CCCT, hosted at the Scientific and Technological Bioresource Nucleus BIOREN-UFRO, of the Universidad de La Frontera (Chile) has the honour of announce the **15<sup>th</sup> International Conference on Culture Collections (ICCC-15)**, which will be held in the **Campus of Pucón, Chile from 25<sup>th</sup> to 29<sup>th</sup> November 2019**.

Once the effort spent in research must return to society through the formal scientific knowledge transfer from the Academy to the Society, the motto of the ICC15 is **"Building Knowledge Based Societies"**.

It is the third time that an ICC15 Conference is organised in Latin-America. Both previous Conferences were organised in Brazil: ICC12 in 1973 and ICC13 in 2010. Organising the ICC15 in Chile means an important achievement for the whole Spanish speaking Latin-American Countries.

The scientific programme is been organised in order to provide the latest developments on the different domains of Culture Collections, as well as in the related scientific fields of the Microbiology and Biotechnology, taking into consideration the motto of the ICC15 Conference.



Atacama Desert



Pascua Island

Over 4.5 working days of the ICC15 Conference in Chile, the event will be aligned in balance with plenary lectures, symposia, social events and Training Courses.

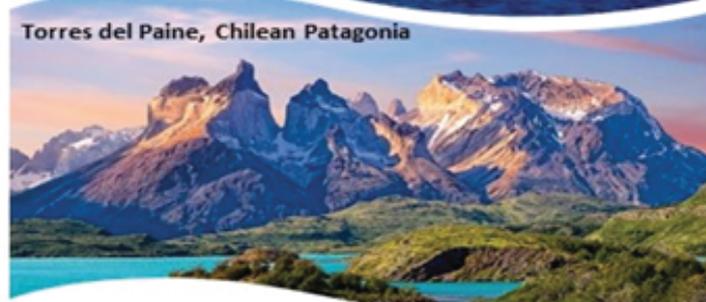
**Pucón is an Andean Mountain Chilean city.** It is the main door to the **Chilean Patagonia**. Pucón is located on the eastern shore of Lake Villarrica, and Villarrica Volcano. Pucón's location by a lake and a volcano, along with its relatively stable climate, especially in summer, make it a popular destination for tourists. It offers a variety of sports and adventure/recreational activities for tourists, including water skiing, snow skiing, backpacking, white water rafting and kayaking, horseback riding, natural hot springs, zip line rides, skydiving and guided ascents of Villarrica volcano.

To travel to Chile, participants should take flights to La Araucanía Airport (ZCO). Then, participants can travel by taxi or transfer from the La Araucanía Airport to Pucón. The taxi fare is 25 Euros and takes 30 min. Additional information and Scientific Programme of the ICC15 Conference in Chile will be available very soon at: [www.bioren.cl](http://www.bioren.cl)

**More information about Pucón:**



Pucón, Lake Villarrica  
and Villarrica Volcano



Torres del Paine, Chilean Patagonia



**Write these important dates down in your agenda**

**ECCO XXXVII**

*Culture Collections for Better Living and Environment*



**37<sup>th</sup> ECCO Annual General Meeting**

**13–14 September 2018**

**Moscow, Russian Academy of Sciences, Russia**



**CABI training course**

**Isolation and identification of environmental fungi**

**13-15 November 2018**



CABI is pleased to offer a five-day training course on **isolation and identification of environmental fungi**. This course provides expert tuition in isolating and culturing fungi from environmental sources, identifying at least 20 common fungal genera by morphology and providing information on hazard status of key environmental and laboratory species. It will be of particular value to those working in the pharmaceutical, food and biotechnology industries; laboratory personnel involved in quality control; technical staff working in environmental microbiology and conservation personnel in the heritage sector.

Participants will receive a comprehensive course manual, PowerPoint lectures, authoritatively named cultures and practical demonstrations. Free slide boxes will be provided to take away labelled slides prepared during the course.

This course will be based at CABI, Babraham Lane, Egham, Surrey, TW20 9TY, UK.

For full details and to apply online, please [visit our website](http://www.cabi.org).





with the Contribution  
of the Turkish Society of  
Microbiology



with the Contribution of  
the George Elinav Institute of  
Bacteriophages, Microbiology and  
Virology

26 - 29 September 2018

La Blanche Island Hotel, Bodrum / TURKEY



# 1<sup>st</sup> MEBAC

## Summit on the Conservation and Sustainable Use of Microbial Resources

(Mediterranean, Balkans, Caucasus) **MEBAC18**

NEWSLETTER – JULY, 2018

As we face challenges brought by the climate change, population growth, water, energy and food shortages at global scale, advances in science and technology are igniting new interest in microbial biotechnology that will ensure sustainable futures through development of microbially-mediated advancements. Microorganisms with their majestic powers will continue to provide solutions and human and environmentally-friendly products and materials to be used by mankind. As a result, microbial genetic resources and their conservation are of immense importance for human beings. In line with these facts we have decided to organize the 1st MEBAC a Summit on the Conservation and Sustainable Use of Microbial Resources in Bodrum, Turkey in 26-29 September 2018.



Halicarnassus, as Bodrum once used to be called, is a deeply historic city where the “Father of History, Herodotus” was born. The most important historical structure still standing today is Bodrum Castle, built by the Knights of St. John in the 13<sup>th</sup> century. However, the castle which is open to its visitors today as the Museum of Underwater Archeology is not the most famous building Bodrum has ever hosted. One of the Seven Wonders of the Ancient World, The Mausoleum at Halicarnassus, used to mesmerise everyone back in the 4<sup>th</sup> century B.C. as one of the most remarkable buildings in antiquity.

A tranquil coastal town today in Turkey, Bodrum has never stopped being a site of attraction throughout all history. We thought this would be the perfect location as we gather for the First Mediterranean, Balkans and Caucasus Summit on the Conservation and Sustainable Use of Microbial Resources. The region being home to many natural coves and bays, as well as countless cultural attractions like concerts, exhibitions and festivals; our summit will be one to remember.

We are impatiently waiting to welcome you all to Bodrum, Turkey, between 26 – 29 September, 2018 in La Blanche Hotel which is located on Pina Peninsula – a paradise within the heart of nature.

  
26/9  
Wednesday  
+29 °C / 15 °C

  
27/9  
Thursday  
+29 °C / 15 °C

  
28/9  
Friday  
+29 °C / 15 °C

  
29/9  
Saturday  
+29 °C / 15 °C

[www.mebac2018.org](http://www.mebac2018.org)

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WORLD FEDERATION FOR CULTURE COLLECTIONS <http://www.wfcc.info>