



WORLD FEDERATION FOR CULTURE COLLECTIONS

Newsletter (No. 58)–OCTOBER 2021



MESSAGE FROM THE PRESIDENT

Dear Members,

Kind greetings from all of us in the 2021-2024 Executive Board. We thank all of you for electing and reelecting us for the next 3 years of service. We also salute all those EB members who completed their second terms and left the EB, and we acknowledge their immense contributions to the WFCC.

We apologize for the delay in the publication of the newsletter due to the pandemic related delays. Although with disastrous consequences worldwide, the pandemic once more highlighted the importance of microbiology and the vital roles of reference culture collections. The pandemic also highlighted the importance of expertise in the relevant fields such as the virology as well as in the rapid identification of causative agents and subsequent preservation of the key material.

At the WDCM front significant progress has been made in the second phase of the Global Catalogue of microorganisms and gcType subproject which generates a high-quality type strain genome database for microbial phylogenetic and functional research. Update is provided by Dr Ma below.

We are also in the process of restructuring our committees namely: (1) Access, Policies and Legal Frameworks, (ii) Networking, Capacity Building and Education, (iii) Postal Quarantine and Safety Regulations, (iv) Standardization and Best Practice Guidelines, (v) Ip, Patent and Commercialization and (vi) Endangered Collections.

Nominated members to these committees will soon receive a letter from our Secretariat and we look forward to working with them in the next 3 years.

We are unfortunately not able to proceed with the ICC'15 however, we will soon start organizing online mini conferences. We planned to have our face-to-face conference in 2023 when hopefully the global security and safety will be much improved.

The last two years dealing with the pandemic again stressed the importance of public health & safety measures and pandemic management, effective design and implementation of prophylactic measures and continuation of culture collection services during interruptions. In these difficult times WFCC again has played and will continue to play its key catalyst role in linking collections and ensuring the continuation of services without interruptions.

We again thank you for electing us. WFCC-EB is fully committed to serve you together with the WDCM for another term and we look forward to receiving your news.

Best regards
İpek Kurtböke
President

NEWS FROM THE WDCM

GCTYPE: A HIGH-QUALITY TYPE STRAIN GENOME DATABASE FOR MICROBIAL PHYLOGENETIC AND FUNCTIONAL RESEARCH

Juncai Ma, Director, WDCM

Taxonomic and functional research of microorganisms has increasingly relied upon genome-based data and methods. As the depository of the Global Catalogue of Microorganisms (GCM) 10K prokaryotic type strain sequencing project, Global Catalogue of Type Strain (gcType) has published 1049 type strain genomes sequenced by the GCM 10K project which are preserved in global culture collections with a valid published status.



Additionally, the information provided through gcType includes >12 000 publicly available type strain genome sequences from Gen-Bank incorporated using quality control criteria and standard data annotation pipelines to form a high-quality reference database.

This database integrates type strain sequences with their phenotypic information to facilitate phenotypic and genotypic analyses. Multiple formats of cross-genome searches and interactive interfaces have allowed extensive exploration of the database's resources. In this study, we describe web-based data analysis pipelines for genomic analyses and genome-based taxonomy, which could serve as a one-stop platform for the identification of prokaryotic species. The number of type strain genomes that are published will continue to increase as the GCM 10K project increases its collaboration with culture collections worldwide. Data of this project is shared with the International Nucleotide Sequence Database Collaboration.

As of September 2020, gcType contains 13 962 prokaryotic type strain genomes, from which 1049 were produced by the GCM 10K sequencing project. In GcType database the information of type strains, 16S rRNA gene sequence data information, Genome sequencing information and sequence data are included. Up to now, gcType data portal, data search functions, Genome assembly and annotation pipeline, New species identification pipeline are developed.

Access to gcType is free at <http://gctype.wdcm.org/>.

A scientific paper with 36 international authors is published online on 29 October 2020 at Nucleic Acids Research, 2021, Vol. 49, Database issue (doi: 10.1093/nar/gkaa957).

NEWS FROM CONFERENCE PARTICIPATIONS AND WORKSHOPS

THE 18TH ASIAN CONSORTIUM FOR THE CONSERVATION AND SUSTAINABLE USE OF MICROBIAL RESOURCES (ACM18)

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The Asian Consortium for the Conservation and Sustainable Use of Microbial Resources (ACM) was established by the National Institute of Technology and Evaluation (NITE) in 2004 in response to the Convention on Biological Diversity (CBD) with its objectives to encourage the conservation of biological diversity, sustainable use of biological resources, and fair and equitable benefit sharing arising out of the utilization of genetic resources.

Thailand Institute of Scientific and Technological Research (TISTR) was the host of the 18th Asian Consortium for the Conservation and Sustainable Use of Microbial Resources (ACM18), organized on 20th July 2021 via Zoom Meeting due to the ongoing COVID-19 situation. The main objectives of the ACM18 meeting were to discuss the work guidelines among members, report on the status and performance of the members' culture collection centers and present the results of joint activities to create a sustainable utilization of microorganisms in various fields, such as food, agriculture, and industry.

In the plenary seminar, Prof. Dr. Ipek Kurtböke, President of the World Federation for Culture Collections (WFCC), presented on "The key role of culture collections when mankind faces climate change, pollution and emerging infectious diseases" and Prof. Dr. Somboon Tanasupawat from the Department of Biochemistry and Microbiology, Faculty of Pharmaceutical Sciences, Chulalongkorn University, presented on "Polyphasic taxonomy of *Sporolactobacillus* and *Terrilactibacillus* strains from tree bark and soil".

In the ACM General Assembly, several important topics were adopted. The highlights are – the

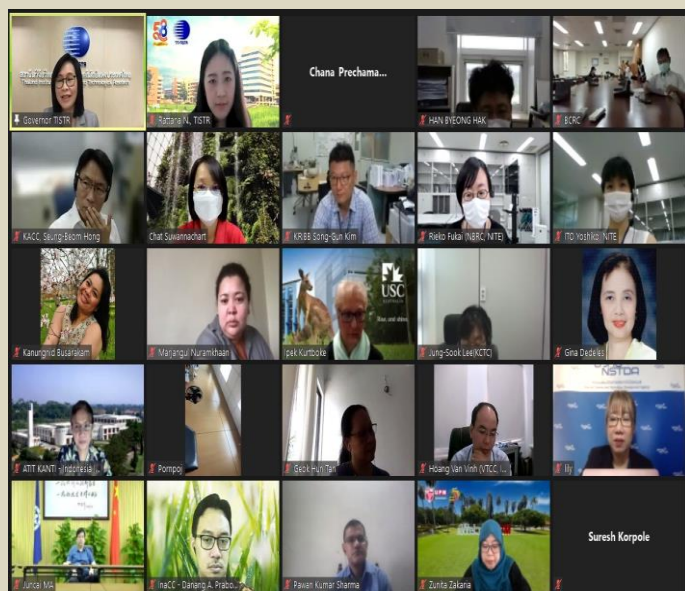
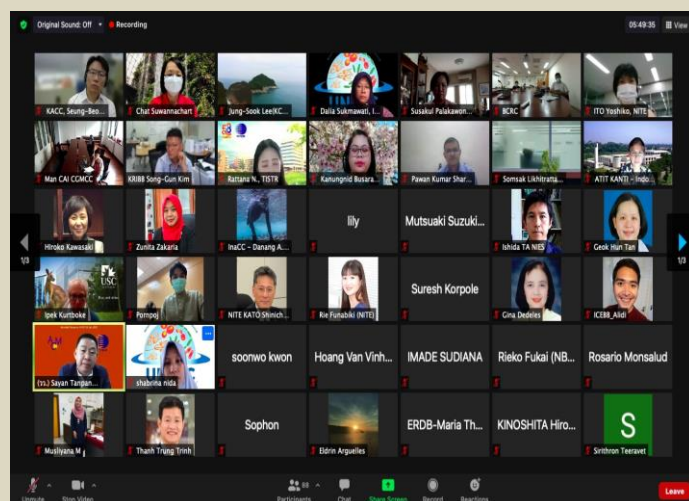
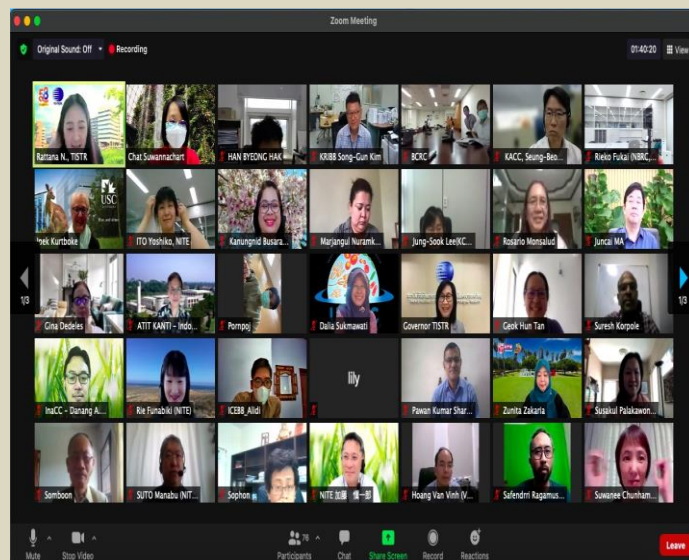


National Biological Research Center, National Institute of Technology and Evaluation (NBRC) of Japan will continually serve as the ACM secretariat and the host for the ACM 19, 2022 will be the Institute of Microbiology Chinese Academy of Sciences (IMCAS), China,

In the Member Report session, 12 ACM members updated the progress of their culture collections. All information were shared among the ACM members in order to foster research and development, services, and joint collaboration on the use of microbial resources and biotechnology.

In the Taskforce meeting, 5 taskforces, namely 1) Asian Biological Resource Center (BRC) Network (ABRCN) –2) BRC Standardization (BRCS) 3) Human Resource Development (HRD) –, 4) Management of Material Transfer (MMT) 5) Mutual Aid Association (MAA), gave their reports.

The ACM18 meeting would be a significant platform, where the international relationships and cooperation among governmental and public organizations for the conservation and utilization of microbial resources in Asian countries were strengthened, the scientific knowledge, experiences and perspectives were shared and exchanged among the ACM members. There were totally 89 attendees, 28 different organizations from 11 countries joining the ACM18 meeting.



NEWS FROM THE MEMBERS

MEXICAN CULTURE COLLECTION CINVESTAV-IPN, IMPORTANCE IN DEVELOPMENT OF BIOTECHNOLOGY IN MEXICO

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Microbiology is one of the Sciences that has more to offer to developing countries, for its significance in



public health, medicine, agriculture, environmental improvement, and industry. Culture Collections of microorganisms are pillar that sustains it, because the demands of research and technology today are stricter with the use of strains of known origin and guaranteed in purity and conservation.

Without microbial cultures, its cellular or enzyme constituents could not exist applied microbiology and therefore biotechnology, that is responsible for transforming the results obtained from basic science (microbiology, molecular biology, biochemistry, etc.) into products and processes of commercial value.

The high cost of strain selection, research, development, patent application, product promotion and acceptability, means the investment of considerable capital, coupled with the fact that the economic feasibility of some Biotechnological industries are usually slightly higher than the processes that could be considered as an alternative, make increasingly important the action of maintaining the productive efficiency of microbial cultures involved in this type of industry through reliable methods to preserve the viability and fundamentally the stability for long periods, Microbial Culture Collection function to ensure or must ensure for present and future generations.

In summary, Microbial Culture Collections are entities where a series of activities are carried with the fundamental objective of, obtaining, preserving, classifying, studying, and documenting in a complete and accessible manner a collection of authentically pure microbial cultures, which are of specific interest and are available on demand, thus being a decisive factor in the development of Microbiology in any of its branches and applications. Based on the above concepts, when Biotechnology and Bioengineering Department of CINVESTAV-IPN was founded, it saw the need to integrate a collection of microorganisms to assist in the department's teaching and research activities.

However, the requirements of other institutions at the national and/or international level led to a greater development than planned for the Collection whose functions and services earned it recognition by WDCM under the international acronym CBBB-500, subsequently joined by the WFCC (World Federation for Culture Collection), an agency that governs the proper functioning of culture collections based on OECD guidelines regarding the Biological Resource Centers.



Figure 1: Mexican Culture Collection CDBB-500 at the present.

Currently, the Collection is member of the Latin American Federation of Culture Collections (FELACC), an organization integrated with more than 50 collections of cultures in Latin America and whose objectives are the preservation and dissemination of the biodiversity of microorganisms with relevant impact in various sectors in Mexico and other countries, providing services and support to other higher research centers as well as to the commercial sector.

A relevant service provided by the CDBB-500 collection is safe deposit of biological material; custody of strains is in order to protect the viability and stability of their properties, to ensure confidentiality about the application or use of strains deposited mainly in production crops from the industrial sector, which are in some phase of research, genetically manipulated, for the application of patents or all those whose distribution is restricted or which represent some characteristic of national or international interest.

Mexican Culture Collection has also participated in a considerable number of refresher courses, congresses, symposiums, workshops and has organized national and international courses related to the subject matter of the Collection. Since its creation, the Collection to date has carried out a



number of research studies on the physicochemical parameters that influence the efficiency of conservation methods.

More than 400 national and foreign institutions have been welcomed for the supply and storage of strains, training courses and technical advice for the identification and classification of microorganisms have been given. Liquid nitrogen storage (-196 C) is used in CDBB500 as main method. As consequence of North American Free Trade Agreement (TLCAN) in 90's decade, the National Commission for the Use and Knowledge of Biodiversity (CONABIO) selected the Collection as a National Reference Center to be recognized as Biological Resource Centre (BRC) in México. Currently, production strains from several important companies in Mexico are stored, cell lines and other microorganisms involved in biotechnological applications have been incorporated. Laboratory manuals, book chapters in the field of microbiology and a catalog of the Collection have been published. Recently, the the book "Memoria de la Base de Datos de la Colección Nacional Microbiana CDBB-500 edited by Porrúa Print, México (May 2012) (ISBN 03-2012-051611405100-01) has been published; a retrospective of the microbiological work and the management of information related to the computational areas has been described.



Figure 2: Liquid nitrogen storage

Currently, a knowledge-based information system is being developed because of an interdisciplinary project between the Mexican Culture Collection CDBB-500 and the Autonomous

Metropolitan University (UAM) as a tool for the exploitation of microbiological information.

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MICROBIAL CULTURE COLLECTIONS IN ARGENTINA

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Relevance of microorganism preservation and their potential biotechnological value represents a constant concern in the microbiological trajectory in Argentina. Throughout decades, scientific institutions from this country were devoted, with a lot of effort, to the preservation *ex situ* of a wide variety of microorganisms.

The need to know the situation and the number of culture collections (from now CC), it has impelled the Subcommittee of Microbial Culture Collections, SCCM, belonging to the Argentine Microbial Association (AAM), to carry out a survey to diverse microbiology centers in Argentina. Currently, 35 culture collections of different size are known; 21 of them are registered in the Latin-American and Caribbean Culture Collections Federation (FELACC), 8 in the WFCC, and 3 in both federations. The 35 collections with different degrees of organization, preserve around 28,000 cultures from diverse taxonomic groups.

Most collections are included in the type "research collections": they come from a secondary laboratory activity, they attend to the needs of the institution that maintains them, preserve only self-interest strains and strain distribution is restrictive to the institution itself or depends on its particular policy.



Collections arose from samplings in the medical area, while others are the result of research projects in public universities (La Plata, Buenos Aires, Salta, Santa Fe, Rosario, Cuyo, Comahue) and governmental scientific or assistance institutions such as the National Council of Scientific and Technical Research (CONICET), the National Institute of Agricultural Technology (INTA) and the National Institute of Infectious Diseases (INEI-ANLIS) "Dr. Carlos G. Malbrán" (Fig. 1). Different centres belonging to public universities and to CONICET, main organism dedicated to the promotion of science and technology in Argentina, preserve edible or medical fungus or bacteria or yeasts from different areas such as agriculture, environment, health, industry, veterinary medicine, food or entomopathogenic fungus (CONICET-Universidad de La Plata). Other collections preserved unique taxonomic groups isolated from different niches as the collection from CERELA-CONICET, in Tucumán, exclusively dedicated to lactic acid bacteria. The INEI-ANLIS Malbrán is a public organism which fundamental mission is to participate in scientific and technical policies related to health aspects of the public sphere; it holds 3 Collections of biomedical interest, as the collection of mycelial fungi and yeasts, another of bacteria from humans, foods and environment and the third CC preserves strains exclusively of the genus *Brucella*. The INTA, organism that contribute to the sustainable development of the agricultural, agro-food and agro-industrial sector, located in different areas of the country, maintain bacteria of veterinary and agriculture interest.

A high percentage of CC preserves microorganisms from different taxonomic groups while a few of them are specific to particular niches or genera. The greatest value of these collections lies in the autochthonous character of most strains.

Geographical distribution of collections is related to the presence of official institutions or public universities (Fig 2).

Collections usually depend mostly on institutional funding or from secondary funds derived from research grants, with the exception of those that carry out services to the industry, which work with private entities. There is no specific official financing support. In general, they don't have personal designated exclusively to the maintenance work, which is carried out as secondary activity by investigators, teachers or professionals. Preservation techniques are variable and depend on

the type of microorganism that the collection conserves.

Culture collection activities generate continuously growing data to record ranging from taxonomic description and data of individual strains and different operational procedures such as preservation lots among others. Even though they all utilize computer records for routine activities, just few use commercial database systems. Catalogs are prepared for internal use, but they are not available on the web.

Quality assurance of the product required good laboratory practice. A high percentage of CC apply quality standards for most common activities of a collection.

From the beginning, the need to share information prevailed and thus, networks and commissions were formed. Since 2000, the SCCM promotes common policies for the organization and maintenance of CCs, with extensive work in stimulating establishment and operation of collections as well as to provide support and training in microbial preservation techniques. It also encourages the involvement of Argentinian CCs in international federations such as WFCC and FELACC.

Collections constitute a registration of the microbial biodiversity of our country; they are a potential source of seed, essential for research and biotechnological development in Argentina. The establish and effective management of culture collections is a demanded task that requires official support. The current state of microbial culture collections and their Latin American integration show their relevant place in Argentina, as organisms responsible for the preservation of microbial biodiversity in the country.

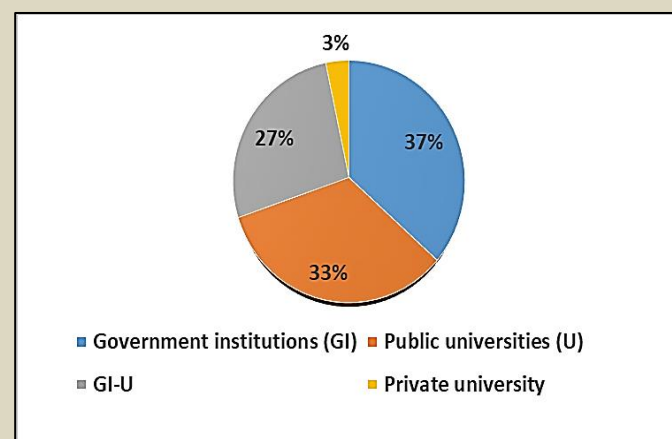


Figure 1. Culture collections in Argentina belongs to parent institutions.



Figure 2. Geographical locations of culture collections.

MICROBIOLOGICAL COLLECTIONS OF PARANÁ NETWORK (CMRP/TAXONLINE), PARANÁ, BRAZIL

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In recent years biological collections are undergoing a process of technological and operational adjustments. Incorporation of new methods and processes that allows the rapid and reliable characterization of strains to be deposited, as well as the introduction of management procedures to facilitate the traceability of sample processing and associated information are now ongoing worldwide.

The establishment of a network is an important step for building a framework, standardize the information and strengthen and modernize biological collections. The **Microbiological Collections of Paraná Network (CMRP/Taxonline), Brazil** is a good, updated example.

The CMRP/Taxonline was established in 2012 as part of the Network of Biological Collections of Paraná “Taxonline Network” (<http://taxonline.bio.br>) and it is an integration of four public universities in the state of Paraná, Southern Brazil, gathering different microbiological collections from the Federal University of Paraná (UFPR) and associated laboratories from the State University of Maringá/PR (UEM), Federal Technological University of Paraná (UTFPR) and State University of Londrina/PR (UEL).

The associated laboratories adopted unified operational protocols for biosafety and collection management and the head laboratory was housed at the Department of Basic Pathology of UFPR (<https://www.cmrp-taxonline.com/>).

The CMRP/Taxonline preserves microbiological strains from pedagogical and research activities, attending the governmental goals for the Brazilian biodiversity conservation and the current legislation regarding compliance to the Nagoya Protocol. At the end of 2013, the Taxonline Network became part of the Brazilian Biodiversity Information System/SIBBR (<http://www.sibbr.gov.br>) and Global Biodiversity Information Facility (<http://www.gbif.org>), with databases implemented also in the SpeciesLink (splink.cria.org.br). In 2018, the collections of the CMRP underwent a process of expansion incorporating into its collection the collections of mammalian cells and plasmid DNA.

The CMRP team comprises 51 collaborators researchers and 16 curators, who develop research projects on: 1. Molecular characterization of fungi and bacteria of clinical and biotechnological relevance; 2. Applied microbiology and biotechnology; 3. Genomic, transcriptomic, and proteomic analysis.



The relevant microbial strains isolated from the activities mentioned above are deposited and preserved in the different associated laboratories of the Network. In order to ensure their standardized preservation, different conservation techniques are used to keep the fungal and bacteria strains. Previous to each strain deposit, curators and technical teams check for compliance regarding the scope of the collection and biosafety levels (Figure 1). Strain authentication is performed by both conventional and molecular biology taxonomy (<https://www.cmrp-taxonline.com/catalogue>).

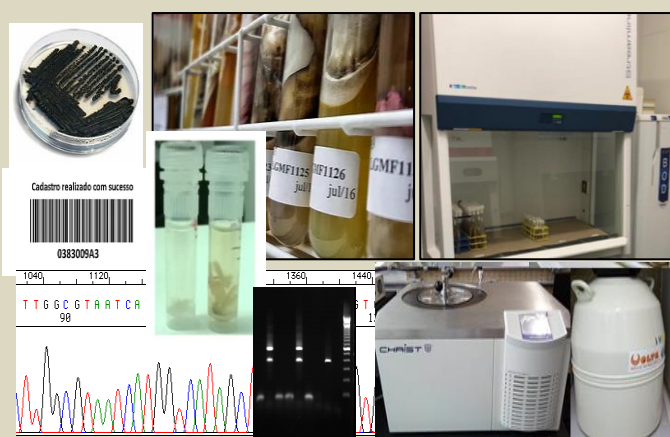


Figure 1. Microbiological Collections of Paraná Network (CMRP/Taxonline): standardized fungal and bacterial collections.

The CMRP/Taxonline presents a standardized data system for deposit. It contains strain basic information such as, authors who made the deposit, strain geographic and substrate origin, taxonomy and molecular data, specific collection code for each culture and others additional information (Figure 2).

Figure 2. The CMRP/Taxonline standardized data system for deposit, with some of the information required.

Recently, the CMRP/Taxonline propose an architecture system for organism database hubs and web portals. This architecture system is being implemented for data online access and download. Besides, information about community can be found and shared using the blog tool and articles recently published (Figure 3).



Figure 3. Integrated Collection data system.

Microbiological Collections of Paraná Network continuously expands its collection of fungal and bacterial strains from research and pedagogical projects of clinical, industrial, and environmental importance.

The CMRP/Taxonline collections are addressed to microbial strains of clinical importance with a broad public health impact of human and environmental clinical origin, biotechnological and taxonomic application (reference strains and type strains) and contains biological material restricted to risk groups 1 and 2 (according to the WHO classification).

Open access deposit is offered (<https://www.cmrp-taxonline.com/collections-and-service>) and culture data information is available in the database in SpeciesLink (smlink.cria.org.br). In both cases there is possibility of restricting the information to public access (open deposit with restriction) under Deposit Form containing the "Authorization for the establishment of TTM (Material Transfer Term)". Biological material for security deposit is also accepted, based on a confidential proposal. Both the material and the associated information are processed and stored



under confidentiality and kept independently from the public collection.

THE NEW FIOCRUZ COVID-19 BIOBANK IN THE FIGHT AGAINST THE PANDEMIC

Manuela da Silva, Gustavo Stefanoff, Carlos do Nascimento e Renata de Souza (Fundação Oswaldo Cruz, Brazil)

The Covid-19 pandemic scenario, as declared by the World Health Organization (WHO) on March 11, 2020, is a public health emergency of international importance, with potential risk to the lives of infected individuals. The pandemic has created a crisis of extraordinary proportions, with serious impacts on global public health. Considering the seriousness of the pandemic, scientific research, and in particular clinical research, took great steps to determine the safety and efficacy of therapeutic and pharmacological resources, as well as the development, in record time, of several vaccines against Covid-19. At the forefront of the health emergency, Biobanks play a key role in understanding Covid-19, contributing to the collection, processing, storage and analysis of biological materials and associated data from individuals infected with the SARS-CoV-2 coronavirus.

Oswaldo Cruz Foundation (Fiocruz), an Institution of Science and Technology in Health, affiliated to the Brazilian Health Ministry, has conducted many important actions against the Covid-19 pandemic, including the building of the Hospital Center and Diagnostic Support Unit for Covid-19. In addition, Fiocruz has several reference laboratories working with SARS-CoV-2 and it has also a Genomic Network that is sequencing new coronavirus throughout the national territory. Thus, there is a generation of thousands of human clinical samples related to Covid-19 and many isolates of SARS-CoV-2 and its variants of interest for future research and development that need an adequate repository infrastructure, such as a biobank, that allows safe, reliable, ethical, legal and traceable storage in compliance with national and international regulations.

For many years Fiocruz had dedicated efforts to establish the Biological Resource Center in Health (Health-BRC), constituted by collections of pathogenic microorganisms, related mainly to

tropical diseases, or those with biotechnological potential, including bacteria, fungi, protozoa, and viruses, diverse microbiological materials with added value (e.g., taxonomic diversity and/ or biotechnological and/or epidemiological interest), and associated data of quality. The Health-BRC was planned to: a) contribute and give support for research and biotechnological development and innovation, offering certified products and services to the scientific community and the Brazilian National Health System (SUS); b) provide services and supply of high-quality products for the development of diagnostics, vaccine and drugs in accordance with international biosafety, biosecurity, quality and legal requirements; c) strength the National Industrial Complex of Health, thus reducing the international dependency of Brazil; d) preserve and give access to representatives of microbial diversity; and e) overall generate value for society.

More recently a new ISO for biobanking was published. The ISO 20387:2018 specifies general requirements for the competence, impartiality and consistent operation of biobanks including quality control requirements to ensure biological material and data collections of appropriate quality. This document is applicable to all organizations performing biobanking, including storage of biological material from multicellular organisms (e.g., human, animal, fungus and plant) and microorganisms for research and development. The new ISO defines Biobank as a legal entity, or part of it, that performs the process of receiving, storing and some activities related to the collection, preparation, preservation, testing, analysis and distribution of defined biological materials, as well as information and data related to them.

Within this context, the construction of a Biobank as a response to the fight against the pandemic will allow safe, reliable, ethical and traceable storage of samples from patients hospitalized or tested for Covid-19. In order to add in this structure, the isolation and storage of potentially existent pathogens in these samples, the Health-BRC project was reformulated, following the new concepts and requirements present in the ISO 20387:2018. Therefore, with the financial support from the Health Ministry, the Fiocruz Covid-19 Biobank (BC19-Fiocruz) was built, initiating its activities with the virus SARS-CoV-2 and its variants, besides human samples related to Covid-19. This enterprise will support the scientific research and technological development conducted at Fiocruz and other institutions, in addition to be a subsidy for others that



will emerge in the future. Following the internationally recommended quality, biosafety and biosecurity standards, the BC19-Fiocruz was conceived in light of the ISO 20387:2018 standard.

Based on the principles of sustainability, accessibility and user comfort, a modern 1,100 m² building was constructed, distributed in areas of preservation of human and non-human biological materials, with laboratory areas classified as biosafety level 2 and respective administrative areas. The biological materials will be preserved in liquid nitrogen tanks and ultra-freezers. Following international technical standards, the Biobank will initially be able to store around 1,5 million samples. The BC19-Fiocruz will have a stabilized electricity supply with redundancy, nitrogen center for cryopreservation equipment, automated monitoring system, independent air conditioning system for each environment, among other utilities. The building was prepared to receive future horizontal and vertical expansions.

Considering the sensitivity of the biological materials that will be preserved, and in compliance with Biosafety and Biosecurity standards, the building was surrounded by a fence around the perimeter, in addition to the construction of two guardhouses, one in the main entrance and the other in the rear entrance. Moreover, all facilities will be controlled by automated monitoring, including the fire and panic prevention and combat system, external access control and restricted internal areas, monitoring of environments and sample storage equipment and Closed-Circuit Television (CCTV).

In compliance with the requirements of national and international legislation, the BC19-Fiocruz will seek recognition as a Biobank of human biological samples for biomedical research purposes from the National Commission of Ethics in Research (Conep/CNS/MS), and as a Biological Resource Center starting with the Virus Collection, which will meet the requirements and regulations of national and international legislation on Access and Benefit Sharing (Nagoya Protocol, Law 13.123/2015, Decree 8.772/2016).

After the end of the pandemic, the Biobank will increase its scope and will incorporate other viruses, bacteria, fungi and protozoa, as well as biological materials from other representatives of the Brazilian biodiversity, besides human samples associated to other diseases. This infrastructure constitutes an open platform, with free access to other science and technology institutions, a format that allows for collaborative actions, nationally and internationally.

The new Fiocruz COVID-19 Biobank was built in the Fiocruz Campus in Rio de Janeiro (Figure 1) and will be inaugurated in the second semester of 2021.



Figure 1: The new Fiocruz COVID-19 Biobank building

INTERNATIONAL SCIENTIFIC COMMUNITY GETS TOGETHER AT WORKSHOP ORGANIZED BY FELACC AND UFRO, CHILE

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More than 500 professors, researchers, specialists, technicians and students from different countries participated in both the Modules I and II of the International Workshop “**ex situ Preservation and Data Management in Microbial Culture Collections**”, organized by the Latin American Federation for Culture Collections (FELACC) in collaboration with the Faculty of Engineering and Science (FICA) of the Universidad de La Frontera (UFRO, Chile), with the support of the UFRO Research Center for Mycorrhizae and Agri-environmental Sustainability (CIMYSA).

The online event brought together the international scientific community that is interested on both, the *ex-situ* microbial preservation and on data management in the field of microbial culture collections. The aim of this workshop was to strengthen and/or expand the collaborative networks in this field.

UFRO-FELACC ALLIANCE

The FELACC was established in 2004 as an organization of experts in microbiology, who are interested in the exchange of ideas, knowledge, and information related to the *ex-situ* preservation of microbial cultures in Latin America and the Caribbean. Since 2018, Professor Cledir Santos (Chile) is part of the FELACC Executive Board. During this period, it was able to build valuable networks and to establish a partnership between FELACC and UFRO.

According to Professor Santos, “to be part in the organization of these two Modules of the workshop allowed FELACC and UFRO to share with the local, national and international community, the work developed by us and our international peers in the field of *ex situ* preservation and data management in microbial culture collections.”

WORKSHOP MODULES

This workshop is being organized in different modules. Since FELACC realized that there is a certain need for training in *ex situ* preservation of

microorganisms in Latin America, the first two modules were developed in Spanish and Portuguese. Once English is the universal language in science, there is an expectation to carry out other similar activities in English in the near future, with the participation of invited specialists from other regions of the world.

The Modules I and II took place on 9th March and 20th April 2021, respectively (**Figure 1**), with the participation of Latin American and European speakers with solid experience in *ex situ* microbial preservation and data management in microbial culture collections (**Figure 2**).



Figure 1: Flyer of the Workshop FELACC 2021 (Modules I and II) - “*ex situ* Preservation and Data Management in Microbial Culture Collections”.



Figure 2: Participation of Latin American and European speakers during the Modules I and II of the workshops.

IMPRESSIONS

Dr. Graciela Davel (Argentina), founder member of FELACC, highlighted the importance of working together to go ahead in the development of Microbial Culture Collections in Latin America, especially during the pandemic's scenario, that has strongly affected the work in the whole world. In addition, the then Dean of the Faculty of Engineering and Science-UFRO, Professor Rodrigo Navia (Chile), believes that it is very important to develop this kind of activities for scientific dissemination. He also points out that "it is an honor for us as a Faculty to be part of this workshop, because we are very interested in building networks that allow us to raise awareness about the importance of *ex situ*

preservation of microorganisms, and to keep working in this field".

At the same time, Dr. Juan Carlos Estrada (Mexico), the then President of FELACC, emphasized that "the recent implementation of distance education all over the world is quite beneficial for FELACC and, in this context, I would like to give a special thanks to the FELACC Executive Board, the organizing committee and the Faculty of Engineering and Science of UFRO, for their efforts and commitment, which made this workshop possible".

Dr. Roberto Suárez (Argentina), the then Vice President of the FELACC, highlighted at the closure of both modules of the Workshop that "if not for these synchronous virtuality events, many of us would not have been able to meet". In addition, Dr. Suárez pointed out that since 2020, this kind of scientific activities has been planned in Argentina, Chile, Colombia, Mexico, among other countries.

The activities organized by FELACC are a proactive way of bringing closer researchers from Latin America and other regions around the world, who work within the framework of microbial culture collections. "These kinds of activities must continue as an important seal of the quality of the events that are sponsored by the FELACC", Dr. Suárez said.

Dr. Gladys Martos (Argentina), then member of the FELACC Executive Board, pointed out the importance of these events not only because of their content, but also for the connection between peers and the exchange of knowledge and ideas.

Professor Vania Vicente (Brazil) presented the development carried out in the "Microbiological Collections Network of Paraná, Brazil (CMRP/Taxonline)" and reinforce the need to work under national and international network. According to Professor Vicente, launching networks is the basis to establish a strategic plan to strengthen and modernize microbiological collections.

PUBLICATIONS

The Workshop featured in addition a poster presentation session (Figure 3) and the publication of the Book of Abstracts, with an editorial committee, entitled "Preservación *ex situ* y Gestión de Datos en Colecciones de Cultivos Microbianos (ISBN: 978-956-236-397-6, <https://xplain.cl/wp-content/uploads/2021/05/Libro-Resumenes.pdf>).

The sessions of Modules I and II were recorded and are available on the FELACC (<http://felacc.cinvestav.mx/divulgacion.html>) and



Xplain websites. (<https://xplain.ci/workshop-felacc-2021/>)



Figure 3: Poster session during the Workshop.

PHILIPPINE NETWORK OF MICROBIAL CULTURE COLLECTIONS CELEBRATES ITS 25th YEAR

Carlo Chris S. Apurillo

President, Philippine Network of Microbial Culture Collections FY 2021

In 1996, the Philippine Network of Microbial Culture Collections (PNMCC) was established primarily to “provide a permanent secretariat for member Philippine microbial culture collections and serve as a central contact point for Philippine scientists and any institution seeking advice and information on microbiological materials and on culture collection-related matters”.

In the past twenty-five years, PNMCC has fulfilled its mission by conducting various seminars, workshops and trainings to promote culture collections. Today, the network has seven affiliate culture collections: 1) Philippine National Collection of Microorganisms (PNCM) of the University of the Philippines Los Baños, 2) University of the

Philippines Natural Sciences Research Institute Culture Collections (UPCC), 3) Microbial Culture Collection of the Museum of Natural History (MCC-MNH) of the University of the Philippines Los Baños, 4) Industrial Technology Development Institute Microbial Culture Collections (ITDI-MCC), 5) University of Santo Tomas Collection of Microbial Strains (UST-CMS), 6) Unilab Clinical Culture Collection (ULCCC) and 7) Polytechnic University of the Philippines Culture Collection.

To celebrate PNMCC’s 25th year, the network has lined up several activities for the year which include the 21st PNMCC Annual Symposium and General Assembly, Workshop on Setting up Microbial Culture Collections, and updating of the Directory of Microbial Strains from different affiliate culture collections.

21st PNMCC ANNUAL SYMPOSIUM AND GENERAL ASSEMBLY

The 21st PNMCC Annual Symposium and General Assembly was held on four Saturdays of October. The symposium featured one keynote speech and nine lectures from experts in various fields of microbiology and culture collection. The theme for this year’s symposium is: Microbial culture collections in the new normal and beyond.

On its first day on October 2, Dr. Rosario G. Monsalud, the head of the Philippine National Collection of Microorganisms (PNCM) delivered the Keynote Speech. She shared the experiences of PNCM through the years and the various successes of the institution in serving as the country’s primary culture collection and providing the country’s needs for microbial resources. This was followed by the talk of Dr. Connie Fe C. Gibas, a Clinical Research Project Manager and Mycologist at the Long School of Medicine of the UT Health San Antonio, Texas, who discussed the integration of an herbarium and living collection for conservation of fungal diversity. Dr. Lourdes Alvarez, a professor and faculty researcher at the Polytechnic University of the Philippines delivered the third talk where she shared the role of culture collections towards strengthening scientific research in the new normal.

The second day of the symposium held on October 9 focused on Networks and Linkages. Three experts from the World Federation of Culture



Collections, led by the president Dr. Ipek Kurtböke, talked about the role and functions of the WFCC and WDCM. Dr. Kurtböke's talk focused on the catalyst role of the WFCC in the transition of culture collections into biological resource centers. Dr. Philippe Desmeth, past president of WFCC discussed the adaptation of culture collections to the scientific and socio-economic evolution. The last talk for the day was given by Dr. Juncai Ma, director of the World Data Center for Microorganisms (WDCM), where he shared to the participants the various ways that the WDCM can help in their works in microbial research.

Day three of the symposium on October 16 highlighted viruses. Dr. Homer Pantua, Senior Principal Scientific Researcher of Genentech discussed the current advances in African Swine Fever Virus research. This included research focusing on viral pathogenesis, diagnostics and vaccine development efforts, globally and in the Philippines. On the other hand, Asst. Prof. Jaymee R. Encabo of the University of the Philippines Los Baños talked about her experiences in working with bacteriophages and shared to participants the techniques in preserving bacteriophages.

On the fourth day on October 23, a lecture on Actinomycete collection for drug discovery was given by Dr. Doralyn Dalisay, a professor from the University of San Agustin. She shared their efforts of discovering novel antibiotics from the Philippines' marine-environment actinomycetes. The other talk for the day focused on maximizing the use of microbial reference cultures in a testing laboratory. This was given by Marlon S. Aguinaldo, a Senior Science Research Specialist at the Industrial Technology Development Institute.

Aside from the lectures, the symposium also featured poster presentations of studies focusing on microbial diversity.

WORKSHOP ON SETTING UP MICROBIAL CULTURE COLLECTIONS

The PNMCC will hold a workshop on setting up microbial culture collections in order to help other institutions in the Philippines to establish their own culture collections. As of now, all the affiliate culture collections are located in Luzon, the large group of islands in the northern Philippines. Other institutions

in Visayas and Mindanao have expressed their interest to maintain their own culture collections, but their staff had not been trained on the basics of setting up a culture collection. Thus, the workshop intends to capacitate the participants with knowledge and skills in order for them to set up a culture collection.



Figure 1: Board of Directors of PNMCC and organizers together with Dr. Kurtböke and Dr. Desmeth on the second day of the Annual Symposium.

The PNMCC shall offer continuous technical support for these participants and institutions in order to increase the number of culture collections in the Philippines. All of these culture collections shall be affiliated with the PNMCC. This workshop will be held on November 16-19, 2021 and will cover essential topics such as: facility design, biorisk management, biosafety cabinets, waste and biological spill management, microbial preservation methods, ISO 17025 and ISO 9001, and good laboratory practices.

UPDATING OF THE DIRECTORY OF MICROBIAL STRAINS

Last September 26, the PNMCC board of directors held a meeting with the curators of the affiliate culture collections to discuss several issues affecting culture collections in the Philippines. During the said meeting, it was agreed that the directory of microbial strains of the affiliate culture collections shall be updated in order to reflect the current collections. To date, directory of strains of three affiliate culture collections: PNCM, ULCCC and



UST-CMS are already posted on the website of PNMCC at www.pnmcc.org. The list of strains from the other affiliate culture collections shall be added to the website once these are submitted. The updated directory of microbial strains shall also be published as a hard copy.

Microbial Strains Search

To search type keyword's by:

- Accession Number (e.g. 10206)
- Organism (e.g. bacterial)
- Species Name (e.g. 10206, Bacteria, Aeromonas hydrophila)
- Author (e.g. CoR)
- Source (e.g. soil)
- Culture Collection (e.g. PNMCC-BIOTECH)

ACCESSION NO.	ORGANISM	SCIENTIFIC NAME	AUTHOR	SOURCE	AVAILABILITY	CULTURE COLLECTION
3171	Multicellular Fungi	<i>Fusarium poae</i> (Peck)	Wollenweber		RESTRICTED	PNMCC-BIOTECH
1533	Mould	<i>Fusarium</i> sp.		Corn	Restricted	USTCMS
1534	Mould	<i>Fusarium</i> sp.		Corn	Restricted	USTCMS
1535	Mould	<i>Fusarium</i> sp.		Corn	Restricted	USTCMS
1536	Mould	<i>Fusarium</i> sp.		Corn	Restricted	USTCMS
1537	Mould	<i>Fusarium</i> sp.		Decaying Water hyacinth leaves	Restricted	USTCMS
1541	Mould	<i>Fusarium</i>		Not specified	Restricted	USTCMS

Figure 2: The updated directory of microbial strains at <http://pnmcc.org/directory-of-microbial-strains/>

As PNMCC celebrates its 25th year, it looks back on its past successes in promoting and advancing culture collections in the Philippines. At the same time, it looks forward to a future with more affiliate culture collections across the Philippines and more collaborations with other institutions and organizations such as the WFCC.

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