

WDCM Training Course of Microbiome Data Sharing

October 15-30; 2017

Venue:

**Institute of Microbiology,
Chinese Academy of Sciences (CAS)
Beijing, China**

Trainee:

Rahila Hafeez

Research Scholar

**1st Fungal Culture Bank of Pakistan (FCBP), Institute of
Agricultural Sciences (IAGS), University of the Punjab, Lahore,
Pakistan.**

Tel: +92-345-0132703, +92-42-99231846, Fax: +92-42-99231187,

email: rahila.impp@gmail.com

Website: <http://pu.edu.pk/home/subdepartment/67015>

Content

<u>No.</u>	<u>Subject</u>	<u>Page Number</u>
1	Personal Information	3
2	Abstract	4
3	Keywords	4
4	1. Brief introduction of the culture collection	5
5	2. Benefit from the training course	8
6	3. Suggestion on WDCM work	8
7	4. Comments or suggestion on the training course	9
8	5. Suggestion on further cooperation between WDCM and your collections	10

Personal Information

I am Rahila Hafeez, Researcher at 1st Fungal Culture Bank of Pakistan (FCBP) since 2013. I did my bachelor and Masters in Agriculture (Plant Pathology) from Institute of Agricultural Sciences, University of the Punjab, Lahore Pakistan in 2008 and 2010 respectively. Currently, I am also PhD student at the same institute and working as the curator of Mycology laboratory (Taxonomy and genetics) in FCBP. My research projects focus mainly on biodiversity and enrichment, isolation, purification, identification and taxonomy of fungal strains from various plant and environmental samples. So far, I have reported several new plant pathogens and worked on antagonism, all outcomes published in reputed journals (IF 23.421). Recently I am working on biocontrol strategies through plant and microbial metabolites to control the emerging plant pathogens.

1st Fungal Culture Bank of Pakistan (FCBP)

Abstract

The training course on microbial resources information management and utilization for developing countries to better promote Microbiome Data Sharing, hosted by WFCC-MIRCEN World Data Centre for Microorganisms (WDCM) and organized by World Federation for Culture Collection (WFCC), The Centre for Microbial Resource and Bio Data, Institute of Microbiology, Chinese Academy of Science (IMCAS) and supported by Bureau of International Co-operation Chinese Academy of Science. Fifteen researchers from developing countries including Bulgaria, Pakistan, Fiji, South Africa, India, Indonesia, Malaysia, Cuba, Chili, Morocco, Vietnam, Russia, Estonia and Thailand participated in this training course aiming to communicate about the developmental trends and technical advancement in the field of microbiome. Promoting to acquire knowledge on microbial culture collection around the world, data management system and data standards in this area and update our information regarding the main databases including WDCM, WFCC and CCINFO, GCM on-line catalogue, taxonomic rules and regulation and required ISO certificate and Bioinformatics in general. The relatively prolonged period of this training course provides participants with the opportunity of communication between scientific groups in different countries and recognition of their weakness and strength for promoting partnerships, joint projects and the networking between microbial resource centres.

Keywords

Data management system, developing countries, ISO, microbial culture collection, training course

1. Brief introduction of the culture collection

1st Fungal Culture Bank of Pakistan (FCBP) was established in 2003 at University of the Punjab, Lahore Pakistan. FCBP started work on collection, isolation of pure culture, identification and preservation of national mycota. FCBP started publishing Myconews, its quarterly newsletter, in July 2003. The main feature of Myconews was list of accessions in its possession under the title of “Current Inventory of FCBP - Additions. The FCBP has accumulated over 1360 accessions of fungi by now. These cultures are available to researchers and teachers throughout Pakistan at nominal cost. FCBP has also been receiving requests for bacterial cultures along with requests for fungal cultures. Hence, it also started work on bacterial cultures in late 2005 and has accumulated an inventory of more than 498 bacterial cultures by 2016.



The Curator of FCBP:

- Dr Muhammad Saleem Haider (Director of Institute)
- Dr. Uzma Bashir (Fungal Taxonomy)
- Dr. Naureen Akhtar (Fungal Systematics / Taxonomy, Microbial genetics)
- Ms. Rahila Hafeez (Fungal Systematic / Taxonomy)
- Mr. Waheed Anwar (Fungal Taxonomy)
- Ms. Amna Ali (Bacterial Taxonomy)

The main purpose of FCBP is provision of cultures of Pakistani strains of fungi and bacteria for research and teaching purpose. FCBP has provided over 1130 cultures

of fungi of Pakistan and 300 of bacterial strains for research and teaching throughout Pakistan up to December 2016. FCBP is also providing sample processing facilities to diagnose pathogen from diseased material or any other substrate and identification on morphology and molecular (ITS) based are also provided to the research students, teachers of various universities all over the Pakistan.

FCBP is registered with the following international organizations:

- i. The World Data Centre for Microorganisms (WDCM) no. 871
- ii. World Federation of Culture Collection (WFCC)
- iii. Microbial Research Centre (MIRCEN)

Currently, FCBP is also playing vital role in the academic activities of the Institute of Agricultural Sciences (IAGS) in addition to its basic duties. Many students are benefiting from the services of FCBP. The beneficiaries are students of PhD, M.Sc. (Hons.) and B.Sc (Hons.). Apart from publishing The Agricultural News with inventory of fungal and bacterial cultures, FCBP has been publishing Research Bulletins. It has published three Research Bulletins. FCBP researchers have also published research papers in various national and international journals.

Currently efforts are in progress for up-gradation of FCBP to a National Microbial Culture Centre to include yeast along with fungi and bacteria. The innovative ideas make to possible for studying the composition and function of microbes in natural environment samples from the perspective of genome-wide, providing an important

means to find new genes, develop new bioactive substances, and study microbial diversity and evolution in the environment.

The focus for up gradation of FCBP will be on following objectives for future prospectus:

- The centre focuses on basic research in the areas of microbial diversity, microbial taxonomy, microbial genomics and proteomics etc.
- Preservation of microbial biodiversity from niche areas as meta-genomic libraries.
- Development of new strategies for isolation and preservation of "not yet cultured" microbes.
- To provide consultation services for patent deposits, preservation, propagation, biodeterioration, industrial problems, biosystematics and microbial biodiversity issues etc.
- To establish and conduct workshops, seminars, symposia and training programs in microbial identification, preservation and advanced areas of microbial taxonomy and phylogeny.
- Establishing and developing scientific and specialized communication and interaction with related national and internationally reputed centres and banks as well as raising the scientific and research status of the Centre at national, regional and international levels.
- Systematic training of the employees for continuously strengthening their technical and specialized knowledge and skills.

2. Benefit from the training course

This training course is good platform for different culture collections to get together and learn different things on microbial taxonomy, systematics and bio-informatics. Lectures on genomics and taxonomy were useful. This will benefit us by giving us a platform to deposit our strain information on GCM. Participation in the training course provides me the opportunity to meet international experts from across the field and it will expand my professional horizon and strengthen my bond with the worldwide staff member of biological resource centre community of individuals and research groups.

During the training course sufficient information regarding the Fellowship Programs of the Chinese Academy of Sciences and requirement condition was provided. This could provide the opportunity for young researcher and students to conduct cooperative research at the institutes of the Chinese Academy of Sciences (CAS).

3. Suggestion on WDCM work

WDCM should continue the effort of up grading data management system in culture collections around the world. It also should search for the strategies to support the small culture collection through financial sponsorship, collaboration and joint project and outsourcing services.

4. Comments or suggestion on the training course

I would like to express my gratitude to WDCM and Bureau of international cooperation Chinese Academy of Science and Dr. Juncai Ma and Miss Jianyuan Zhang for providing me the opportunity to participate in the Training Course of Microbial Resources Information Management and Utilization for Developing Countries and for sponsorship of the accommodation and allowance during the training course in Beijing.

The training course was generously sponsored by CAS. However, it seems that better organization of topic and avoiding the overlapping theme and titles could provide the opportunity to reduce the duration of course and increase the quality and the volume of information.

Most of the content of training course was theoretical information. Practical workshops regarding advance method of Isolation, Identification and preservation of microorganisms is strongly suggested.

In my opinion, Bioinformatics, metagenomics and whole genome sequence analysis are very popular topic in modern microbiology. Hand on training to analyse data related to the recent molecular technologies would be very useful for participants. Lectures followed by practice on the topic will be more beneficial for understanding the process involved.

5. Suggestion on further cooperation between WDCM and the collections

Continuous cooperation, constant up- date of information, in WDCM could play a significant role in increasing the visibility of micro-biological resources around the world and facilitate the better usage of biological resource holding in both academic and industrial level.

FCBP needs to get registered at ABC (WDCM Analyzer of Bio-Resources Management) data base form.