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Belgian Co-ordinated Collections of Micro-organisms (BCCM): a network of publicly financed *ex-situ* collections of micro-organisms

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Abstract

The Office for Scientific, Technical and Cultural Affairs (OSTC) helps Belgian initiatives aiming at fulfilling the objectives of the Convention on Biological Diversity (CBD, Rio de Janeiro 5, June 1992). The OSTC funds research and conservation programmes, communication and accessibility initiatives as well as national and international co-operation. Among these initiatives, the Belgian Co-ordinated Collections of Micro-organisms (BCCM™) is a good example of a programme where actions in research, access to and conservation of genetic resources, as well as communication, and co-operation are integrated in a successful network. The BCCM missions are the conservation and the valorisation of micro-biodiversity. In this view, this consortium develops a network of national and international contacts with public and private, for- and non-for-profit, national and international scientific institutions. The BCCM participates actively to and launched pilot projects leading to a better co-operation in the field of microbiology.

The Convention on Biological Diversity (CBD, Rio de Janeiro, 5 June 1992) aims to provide for "*the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources*". To achieve these goals of conservation and valorisation of resources, the prerequisites are sufficient funds and qualified personnel, but also accessibility to the resources, as well as communication and co-operation between all the stakeholders involved in the implementation of the CBD.

The Office for Scientific, Technical and Cultural Affairs (OSTC) helps Belgian initiatives aiming at fulfilling the objectives of the CBD, by funding research and conservation programmes, communication and accessibility initiatives as well as national and international co-operation. The OSTC supports research and conservation through the implementation of research programmes such as the biodiversity platform, as well as the activities of the Royal Belgian Institute of Natural Sciences (RBINS), the Royal Museum for Central Africa (RMCA) and the Belgian Co-ordinated Collections of Micro-organisms (BCCM).

The OSTC stimulates communication and access to genetic resources and related information by supporting *inter alia* the on-line inventory of biological resources (BIODIV-BELNET), the implementation of a metadatabank for Central Africa (METAFRO) and also the on-line catalogues of BCCM (http://www.belspo.be/bccm/). Additionally, it facilitates national and international co-operation, among others by giving support to the Belgian National Focal Point to the CBD, by granting fellowships in the framework of bilateral agreements, and by providing for co-ordination of the BCCM.

The Belgian Co-ordinated Collections of Micro-organisms (BCCM) is a good example of a programme where actions in research and conservation, communication and accessibility, and co-operation are integrated in a successful network. The OSTC is funding these four Belgian Co-ordinated Collections of Micro-organisms through a long-term supporting programme scientifically and financially evaluated each five years. It also provides a co-ordination team that helps the collections to develop a common strategy in the fields of bio-informatics, quality management, and internal as well as external co-operation while each of the nodes of the consortium keep their own identity and specificity.

The BCCM missions are the conservation and the valorisation of micro-biodiversity. At present, the BCCM proposes over 50,000 well-documented and authenticated strains of bacteria, filamentous and yeast fungi and over 1,500 plasmids. With these missions in view, the support of OSTC also facilitates the extension of the range and the improvement of quality of the services rendered by the BCCM to public and private, for- and non-for profit, national and international scientists.

The BCCM's origins go back to 1983, when a study ordered by the Belgian government showed that the patrimony of microbial resources and the human skills available in separate Belgian institutions could be better conserved and optimally exploited by joining forces. At that time, collections of one public scientific institution and two universities decided to accept the challenge:

— the collection of fungi and yeasts of biomedical importance "BCCM/IHEM" established since 1980 at the Mycology Laboratory of the Institute of Public Health - Louis PASTEUR;

— the collection of fungi and yeasts of agro-industrial

importance ''BCCM/MUCL'', developed since 1894 at the Catholic University of Louvain;
— the bacteria collection ''BCCM/LMG'', developed since 1946 at the Microbiology Laboratory of the Faculty of Sciences of the University of Ghent.

In 1990, the plasmid collection ''BCCM/LMBP'' hosted since 1977 in the Laboratory of Molecular Biology of the University of Ghent became the fourth partner within the BCCM consortium.

The co-operation within the BCCM resulted in the publication of the first set of catalogues in 1989. The latest catalogues were issued in 1998 both as hardcopy and on-line on the BCCM website. It also enabled the BCCM to obtain in 1992 the International Depository Authority (IDA) status from the World Intellectual Property Organisation in the framework of international patent legislation (Budapest Treaty).

The Belgian Co-ordinated Collections of Micro-organisms, having experienced the improvement of their capacity of conservation, handling and study of microbial resources through collaborative efforts and co-ordination at consortium level, strongly believe that also at world level there is no future for culture collections without equitable and fair networking. Management of culture collections and sustainable valorisation of their patrimony are time and personnel consuming undertakings. There is no way out without co-operation, therefore, BCCM promotes focused collaboration on long-term scheme between well established collections and promising but not yet secured collections. These collaborations should evolve into long-term equitable partnerships.

In consequence, the BCCM developed pilot projects on international co-operation as recommended by the CBD in its article 5. More precisely, the BCCM developed a common research programme on biological resources with the People's Republic of China, in the framework of a bilateral agreement and according to the principles of article 7 of the CBD, promoting the identification and the monitoring of biodiversity. In the same way and in the framework of a bilateral agreement with the Kingdom of Morocco, the BCCM launched together with a network of Moroccan laboratories and the Moroccan Centre of Co-ordination and Planning of Scientific and Technical Research, and with the support of the Belgian Directorate-General for International Co-operation, a project aiming at establishing a national Moroccan culture collections network as effective implementation of the directives of article 9 of the CBD about the *ex-situ* conservation of biological resources.

Furthermore, for the BCCM, co-operation at global level means also involvement, as a consortium but also as individual collections, in international organisations such as the European Culture Collections' Organisation (ECCO), the World Federation for Culture Collections (WFCC) and the UNESCO Microbial Resources Centres Network (MIRCEN). International co-operation also means active participation in projects that facilitate global communication and co-operation between collections, such as the project on Common Access to Biotechnological Resources and Information (CABRI) and the project to write a widely accepted ''Micro-Organisms Sustainable use and Access regulation International Code of Conduct'' (MOSAICC).

MOSAICC is a voluntary code of conduct, a tool to support the implementation of the CBD at the microbial level, in accordance with other relevant rules of international and national laws. MOSAICC translates the principles of the CBD into practical procedures for transferring microbial genetic resources.

Supported by the Directorate-General ''Research and Development'' of the European Commission, the BCCM launched the concerted action ''MOSAICC'' in September 1997, for a duration of 22 months. The MOSAICC project involved twelve partners, including representatives from North and South, representatives from the not-for-profit sector (e.g. government, culture collections, academics, NGOs) as well as from the commercial sector (e.g. pharmaceutical, chemical and food industry).

Access to microbial genetic resources (MGRs) is a prerequisite for the advancement of microbiology. Since microbiologists must deal with MGRs from all over the world, there is a need for an administrative system that enables easy circulation of MGRs for the progress of science and sustainable development. Furthermore, monitoring the transfer of MGRs is necessary to identify the individuals and groups that are entitled to be scientifically or financially rewarded for their contribution to the conservation and sustainable use of the MGRs. MOSAICC combines the need for easy transfer of MGRs and the need to monitor the transfer of MGRs.

MOSAICC translates the CBD principles of prior informed consent (PIC) regulating access to MGRs (CBD art.15.1 & 15.2) and the need for an agreement on terms of transfer of MGRs (CBD art.15.4 & 15.7) into two technical recommendations: the origin of MGRs should always be mentioned and checked via initial PIC and the transfer of MGRs should always occur under Material Transfer Agreement (MTA).

The MOSAICC code of conduct now available (see URL http://www.belspo.be/bccm/mosaicc/) is the result of five successive drafts improved through dialogue between MOSAICC partners and other experts invited to comment on the contents of MOSAICC.

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