



BCCM culture collections at the heart of the *ex situ* microbial biodiversity conservation

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Why focus on microorganisms?

Macroorganisms depend on their microbial partners. Survival and evolution are indeed linked to the variety of interactions between higher organisms and their microbiome. Unfortunately, the importance of microbial biodiversity is often forgotten given the difficulty to explore organisms that are invisible to the eye and the non-iconic status of a microbe versus a panda bear or a blue whale.

Presentation of BCCM consortium?

The oldest collections of microorganisms were established in the late 19th century. In Belgium, the "Belgian Coordinated Collections of Microorganisms" (BCCM) was created in 1983. A Quality Management System was put in place and an ISO 9001 certification covers the deposit and distribution processes. Currently, the BCCM collections are among the biggest in the world, both in terms of the number of their biological materials that are stored, as in terms of their expertise and services offered towards both academical and industrial partners.



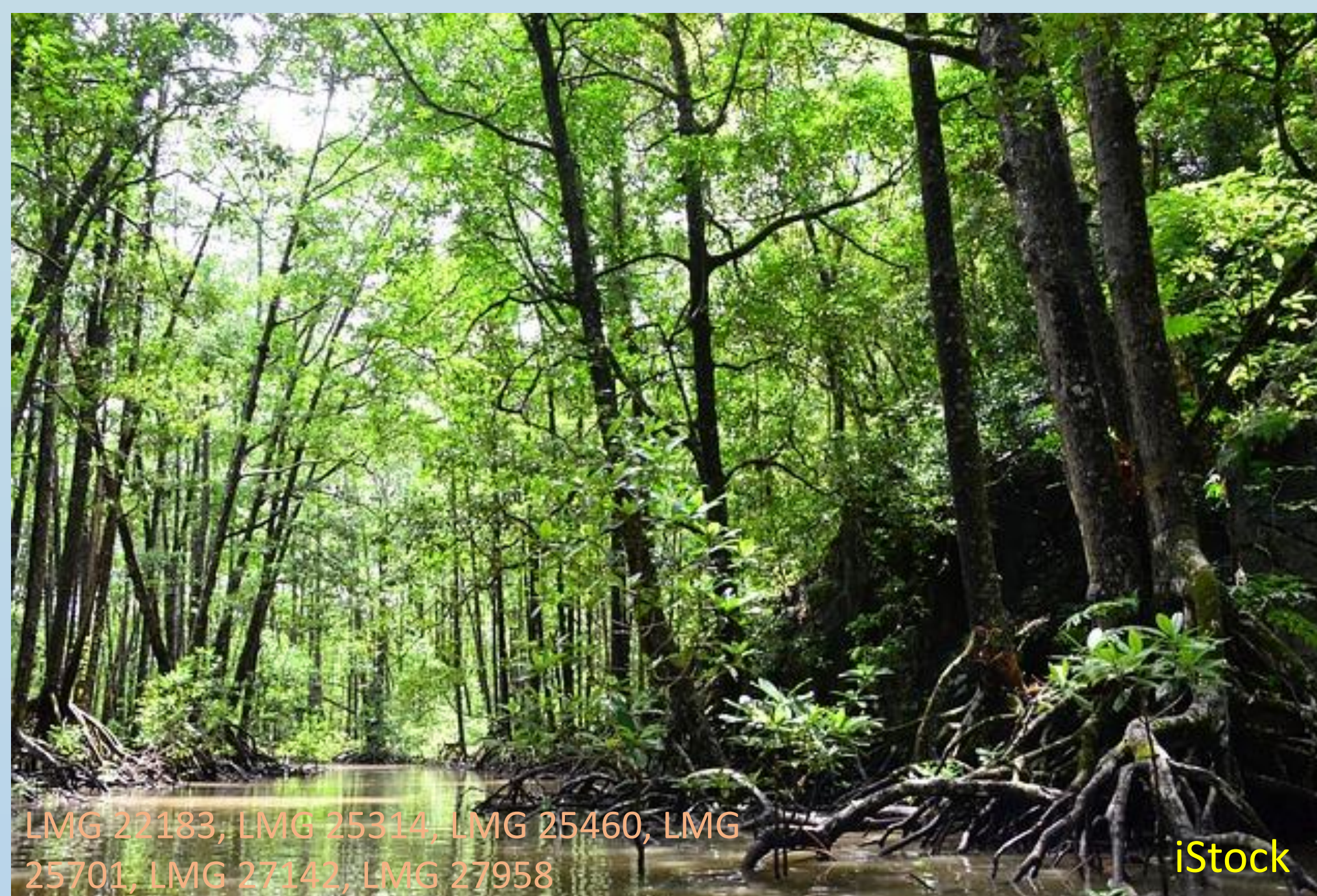
What is the role of BCCM for the conservation of microbial diversity?

The BCCM entities are dedicated to sustained conservation of biodiversity. This commitment involves accepting strains and genetic resources in their collections, with due respect of their legal obligations (Nagoya Protocol, etc). Additionally, they actively isolate new strains from environmental samples, sometimes from biotopes threatened by global changes. For example, BCCM/ULC and BCCM/LMG conserve strains from Antarctic biotopes (including endemic taxa) with the latter also including strains isolated from the Red Sea or mangroves' samples, while BCCM/ITM comprises mycobacteria from tropical swamps.



LMG 10943, LMG 10947, LMG 21293, LMG 21348, LMG 22536, LMG 23697, LMG 24307, LMG 24561, LMG 24563, LMG 26586

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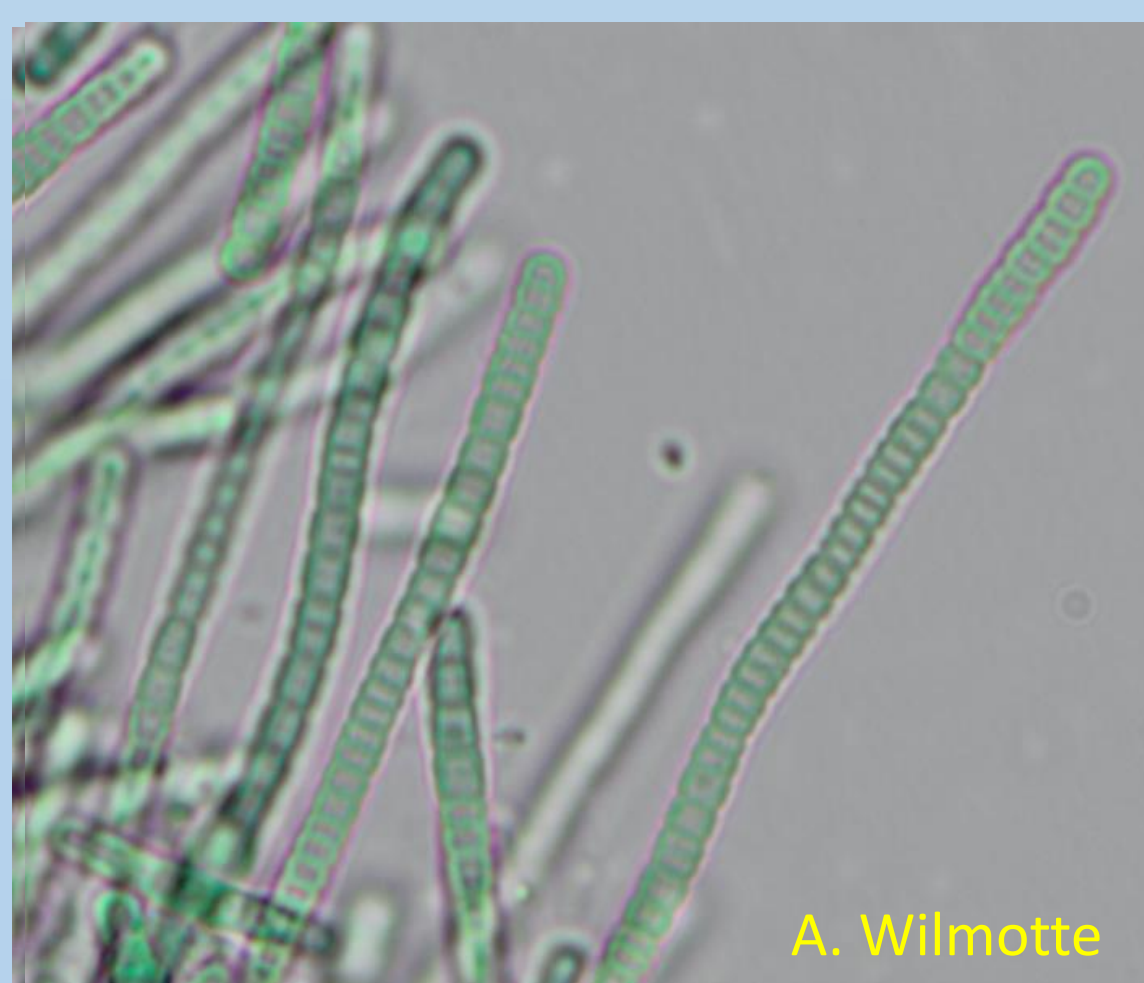
LMG 23183, LMG 25324, LMG 25460, LMG 25708, LMG 27149, LMG 27958

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F. Porfaels

Red Sea, mangroves and tropical swamps where BCCM/LMG and ITM strains were isolated



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Antarctica: *Plectolyngbya hodgsonii*, endemic cyanobacterial species of BCCM/ULC and lakes and terrestrial habitats in hostile conditions

The biological material deposited in each entity is identified and characterized by state-of-the-art methods based on the expertise of their curators and scientists. Their know-how is also shared through open access scientific publications and communicated with the general public via exhibitions and newsletters. Scientists engaged in fundamental or applied research, industrial applications, quality control or teaching purposes can acquire the publicly available biological resources for a nominal fee. The recent developments in genomics are met at BCCM with the development of the GENERA toolbox, a suite of Nextflow-Singularity workflows designed for comparative genomics of prokaryotes and small eukaryotes.



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