

**THE STATUS** and long-term future of UK and European culture collections is of great concern. It is something that should worry all microbiologists, regardless of their discipline, as culture collections are central to the advancement of microbiology.

There is no doubting the quality and international relevance of zoological and botanical collections that are maintained within the UK. These large museums and herbaria are currently receiving financial investment and undergoing significant changes in terms of digitization and online cataloguing of resources, (e.g. the Millennium Seed Bank, the Synthesys project), although it is recognized that these funds are still insufficient. Culture collections are the microbiological equivalent of these, allowing re-examination of type materials and comparison of related strains, and they are repositories for microbiological diversity, enabling access to archived materials, etc., fulfilling all the roles of a museum or herbarium for microbiology. Generally, culture collections are run for profit, with additional Research Council or government funding; however, they are constantly under pressure for money to ensure their long-term future.

There needs to be radical changes in the system, use and expectations of these collections. Perhaps re-branding them as 'Biological Resources Centres' could facilitate and underpin the future of microbiology and biotechnology. Culture collections are essential for environmental (biodiversity), agricultural, health and commercial aspects of microbiology in their role as preservers and providers of microbiological material, as repositories for the protection of intellectual property and as resources for public and government information. The resources are currently in the form of strains and cell lines, but could be integrated with genetic data, especially as the cost of genome sequencing is falling daily. The future could involve the linking of sequencing centres and culture collections to provide an almost federalized system of biological repository. This has been partially achieved recently with the amalgamation of the National Collection of Type Cultures, the European Collection of Cell Cultures, the National Collection of Pathogenic Viruses and the National Collection of Pathogenic Fungi under the auspices of the Health Protection Agency Culture Collections (HPACC). This federated system is looking bright for the future health of these collections in the UK, following years of each one being under-resourced. However, HPACC does not encompass all the culture collections even within the UK, and there are still gaps within its remit (see <http://wdc.m.nig.ac.jp/hpcc.html> for a list of world culture collections).

The loss of taxonomists through retirement and a subsequent reduction in teaching of systematics in universities

Bacterial culture samples. Massimo Brega / Eurelios / SPL

**The decline in culture collections in the UK and Europe should worry all microbiologists. Their fundamental role and importance in microbiological research seems to have been forgotten and financial support has withered. How can the long-term future of these guardians of microbial diversity be guaranteed?**

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has resulted in a decrease in the quality of taxonomic manuscripts submitted to journals and strains submitted to culture collections. Perhaps the offering of specialist training courses by culture collections in taxonomic methods and procedures, maintenance and preservation of strains would improve the situation. DSMZ offer identification services; maybe UK collections could go a step further by offering training? This would increase the level of expertise, the validity of new species descriptions and the quality of manuscripts submitted to journals which publish taxonomic papers. This would, ultimately, also generate a revenue stream for the collections.

In the far east, Japan, South Korea and China have invested heavily in taxonomy and systematics in the last 15–20 years, providing funding for students, investment in biological resource and drug discovery centres, linking culture collections and genomics with drug discovery, medicines and therapeutics – all commercially targeted, yet all underpinned by the culture collection and taxonomy.

We all rely on using the correct strain for our experiments, and with recent high-profile cases of cell lines and strains being mixed up and the wrong ones being used in crucial experiments, the provision of authenticated strains for researchers is essential. Maybe it is time for a radical rethink of how culture collections are used; but if we do not use them, then we will lose them!

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Please note that views expressed in Comment do not necessarily reflect official policy of the SGM Council.

COMMENT

Guardians of microbial diversity