



➔ Managing microbes e-learning tool

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KNOWLEDGE FOR LIFE

Summary

- Rationale of e learning
- Description of Managing Microbes
- What it looks like
- Live link – but available also on CD-ROM
- Technical information
- Who to contact to get more details

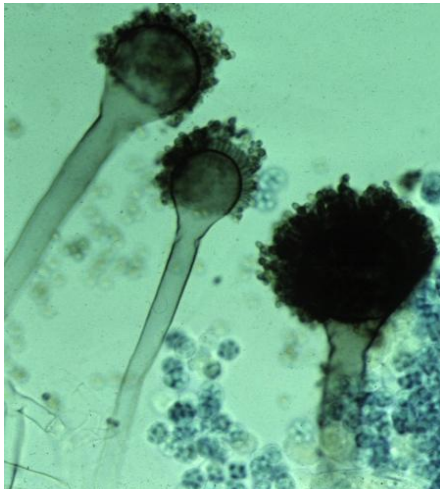
Rationale



- Reduce costs moving and accommodating people
- No inconvenient work down time, do it when it suits you
- Provides a benchmark of knowledge
- Repeatable at your own pace
- Updated regularly
- **Cannot replace practical tuition and in laboratory training**

So what is it?

An 8-10 hour online course which provides a comprehensive guide to technical, legislative and practical aspects of working with microorganisms in a laboratory.



Each Module provides opportunities for:

Self-paced learning with practice activities in each topic

Repeated review of the content and practice activities to embed concepts and enhance familiarity with key approaches

Modular assessments to track overall progress.

What does it cover?

The issues around establishing and managing a culture collection

The methods of characterising and using various microorganisms

Best practice with regard to identification, isolation, storage and growth

Preservation techniques and their application for specific microorganisms

Health and safety requirements for working with microorganisms

Compliance with international standards of best practice

What does it look like?

http://aristotle.learningmate.com/cab02/Managing_Microbes/index.html

Module 01: Culture Collections

Study Plan

The information in this module is organised into three broad categories, which will help you to prioritise and address your specific learning needs. Given below is a snapshot of what each area covers and the approximate time to go through it.



Core Learning

This resource contains the core learning content for this module and provides links to additional reading material, wherever applicable. The approximate time to go through the core learning section for this module is 1 hour 30 minutes. The core learning is further divided into the following topics:

*Roll your cursor over a topic name to view a brief description of the topic.
Click a topic name to access the core learning information for that topic.*

1: Why Retain Microorganisms

2: Role of Culture Collections

3: Issues Affecting Culture Collections

4: Culture Collection Quality Management

5: Managing a Small Working Collection

6: CABI as an example of a Public Service Collection



Module Assessment

This resource contains 15 assessment questions related to the core learning covered in this module and helps you to assess your understanding of the module. The approximate time to go through the module assessment is 15 minutes.

Click here to access the assessment for this module.



eLibrary

This resource contains additional information and reference material which supplements the core learning of this module. This provides valuable background material essential to those requiring a more advanced understanding of the subject, which you can select according to your learning needs.

Click here to access additional reading information for this module.

Collections Management

Module 1: Culture Collections



Module Introduction

Culture collections have provided a service to the scientific community for over seventy years. The traditional role of such collections was to provide the scientific community with access to authenticated cultures and specialist advice on their cultivation and preservation. In recent years, other services have been added to the curatorial role of service culture collections, such as patent deposit facilities and the supply of cultures for quality control. Indeed, service culture collections have evolved into Biological Resource Centres (BRCs), thereby responding to revolutionary developments in areas such as molecular biology and bioinformatics.

This module covers in detail the importance of conserving microorganisms as culture collections and the role they play in research. It also deals with the various factors involved in the maintenance and management of a good working collection.

Module Objectives

- Recognise the different aspects of culture collections and their quality management systems
- Explain the need to retain microorganisms
- Identify issues affecting culture collections
- Describe how to manage a small working collection
- Recognise, as an example, how CABI's public service collection is managed

Click **Next** to go to the Study Plan for this module.

Use of Microorganisms

Module 2: Characterisation and Use of Microorganisms

Module Introduction

Microorganisms make up a major portion of the living biomass on this planet. They are essential in many aspects of life and hence it is important to properly identify and characterise them. The various characterising tests described in this module will be useful in this context.

Characterisation from a preservation prospective:

- Ensures the correct taxonomy to allow selection of the correct preservation procedure (e.g. anatomy, morphology)
- Allows the assessment of the suitability of the preservation regime applied and, if necessary, the need to modify and improve preservation procedure
- Facilitates the monitoring of long-term stability of the organism
- Provides information to help identify the scope of use

Screening organisms or extracts from them helps in detection of novel products (metabolites, vitamins, enzymes) and the potential for other economic uses.

Module Objectives

- Describe methods available for culture characterisation
- Describe the uses of microorganisms

Click **Next** to go to the Study Plan for this module.



Module 3: Isolation and Growth of Microorganisms



Module 3: Isolation and Growth of Microorganisms

Module Introduction

Microorganisms have many uses in a variety of applications from industry to research. So understanding ways of isolating and identifying microorganisms is of critical importance. The techniques vary for different organisms according to their specific growth requirements. In this module we will review the methods that can be used for isolating and growing bacteria, yeast forming fungi and filamentous fungi.

Module Objectives

- Describe the appropriate techniques for isolation and culture of bacteria
- Describe the appropriate techniques for isolation and culture of yeast forming fungi
- Describe the appropriate techniques for isolation and culture of filamentous fungi
- Identify the basic techniques for isolation of microorganisms using plant material as an example

Click **Next** to go to the Study Plan for this module.



Module 4: Preservation of Microorganisms



Module 4: Preserving Microorganisms

Module Introduction

Microorganisms, because of their importance in different aspects of research and development, need to be preserved for future reference. There are a number of preservation methods which have been developed according to the type of organism to be stored and the purpose for which it needs to be stored. These methods maintain them in a viable and stable form without affecting their morphology or physiology. This module highlights the different preservation and storage techniques available and provides guidelines for the selection of these techniques based on which microbial culture it is most suitable for.

Module Objectives

- Describe the methods used for longer-term maintenance and preservation of specific microbes
- Describe the standard preservation regimes
- Describe the selection and development of preservation techniques for different types of collections
- Describe preservation methods for bacteria and the advantages and disadvantages of each method
- Describe preservation methods for fungi and the advantages and disadvantages of each method

Click **Next** to go to the Study Plan for this module.



Module 5: Safe Handling and Distribution

Module 5: Safe Handling and Distributing of Microorganisms

Module Introduction

Microbial culture collections are stored in many organisations all over the world. This facilitates in the research and development of microorganisms. Many of these organisms are potential pathogens and may even present health hazards, thereby stressing on the need to handle these organisms with the utmost care. Necessary precautions must be taken in the storage, handling and distribution of microbial cultures. Best practices have been defined, which offer guidance to collection organisations. This module covers in detail the health and safety requirements that are taken into consideration while handling microorganisms.

Module Objectives

- Explain the importance of health and safety requirements when working with microorganisms and the impact of regulations and the law
- Describe hazard group classification of organisms based on their risks and the different containment levels
- Identify safety measures regarding equipment, culture media, stains and chemicals
- Describe safety criteria and compliance
- Describe the controls that various countries have in place for distribution of dangerous organisms and the impact of these measure on microorganism distribution

Click **Next** to go to the Study Plan for this module.



Module 6: Compliance with Best Practice in Microbiology



Module 6: Compliance with Best Practice in Microbiology

Module Introduction

Best practices are derived from many sources, for example, from simple protocols published in peer reviewed journals, and from standards developed by practitioners in the field. Examples of the latter are the International Standards Organisation (ISO) standards that are implemented by National Accreditation Bodies. The work of microbiology laboratories can be subject to such standards or best practices. This module covers in detail some of the best practices that are available and the differences in their use and application. It will help prepare participants introduce best practices in their laboratory and comply with applicable standards.

Module Objectives

- Identify Best Practices and standards applied in microbiology
- Describe general Best Practices for BRCs
- Describe the implementation and operation of CWA biorisk standard
- Describe the effect of QM on Freeze Drying
- Describe mechanisms to demonstrate compliance with best practices

Click **Next** to go to the Study Plan for this module.



How can Managing Microbes help me?

It enables you to:

Provide an engaging course for CPD or curricula purposes

Maximise learning opportunities in the face of budget cuts

Benefit from CABI's expertise to build your students, staff or members' knowledge base

You can:

- Build an engaging curriculum around the material
- Use each module to equip your students with an overview of each topic.
- Monitor entry and exit level understanding with the multi-choice Module Assessments
- Focus your time on developing their practical skills and broadening their knowledge

Your students can

- Work through each topic and activity for revision to enrich comprehension
- Use the Module Assessments as before and after monitoring tools
- Draw on the downloadable e-library materials to support their revision and core course work.
- Use the topic areas as a guide for discussion and literature review sessions.

How can I sample the course?

Talk to us to request access to our demonstration site or ask for a sample on CD-ROM.

Technical Information

Compliant with SCORM v. 1.2 so it can be easily integrated into most learning management systems

Produced in Flash version 8.

Accessible through our LMS for demonstrations and licensed deployment and on access controlled CD-ROM for easy installation in low-bandwidth areas.

Talk to us about your requirements.

What you'll need to run it

Hardware Requirements

Windows 2000 or above operating systems

Intel Pentium® III processor (or equivalent) / 600 MHz or greater
256 MB RAM

Screen Requirements: Minimum 1024 x 768 pixels screen resolution

16-Bit color

Software Requirements

Browsers: IE 6 or higher

Firefox 2.0 or higher

Software: Flash Player 8 or higher

Enquiries

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