International Collection of Micro-organisms from Plants (ICMP)

Micro-organisms include bacteria and micro-fungi. Some micro-organisms (parasites) cause harm to their host plants and others are beneficial. For example, symbiotic micro-organisms (rhizobia; mycorrhizae) form an intimate association with plant roots, resulting in enhanced growth of both the plant and the micro-organism.

Most micro-organisms can be stored as freeze-dried or deep frozen cultures. A few will not survive these treatments and can be maintained only by regular reculturing of the organism. Even the freeze-dried and frozen specimens have a finite 'shelf-life' (20-30 years), and must be recultured periodically.

ICMP is a repository for micro-organisms of plant and soil origin. It began in 1952 as the personal collection of plant pathogenic bacteria and rhizobia of Auckland-based DSIR bacteriologist DW Dye. In 1961, it became the DSIR Plant Diseases Division Culture Collection, and fungal cultures began to be included. It expanded to become ICMP, in 1988, containing representative cultures of the world's bacterial plant pathogens, reference cultures of fungal plant pathogens of New Zealand and the South Pacific, and cultures of other micro-organisms associated with plants. Present holdings are ca. 6,500 strains of bacteria and 5,500 strains of fungi.

ICMP is a living collection that has been accorded 'National Significance' status. Until recently, cultures have been preserved by freeze-drying. New accessions and recultured organisms are now deep frozen over liquid nitrogen, ensuring easier and more reliable long-term maintenance.

What is the function of ICMP?

- To acquire, preserve, and maintain cultures of New Zealand micro-organisms associated with plants.
- To act as an international repository for cultures of the world's plant pathogenic bacteria.
- To provide cultures for relevant research.
- To provide specialist information to various organisations and government departments both within New Zealand and throughout the Pacific.

Who uses the ICMP?

Data and cultures are provided to researchers in New Zealand and around the world. These are used for:

- Systematics research, to understand the relationships of the organisms
- Reference strains for identification of New Zealand's biosecurity interceptions
- Reference strains for regulating importation of new plant and soil organisms
- Teaching, especially in universities
- Exploration for bioactivity
- Studies of the behaviour of plant pathogens towards disease control, and development of plant protection products
- Studies to understand the roles of micro-organisms in ecosystem interactions.

Containment

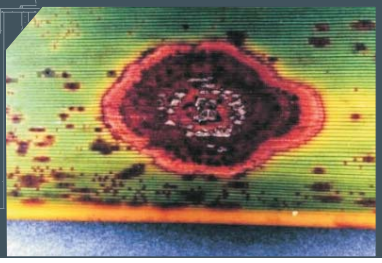
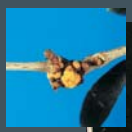
ICMP conforms to enhanced PC2 Containment criteria. The facility is permanently locked and access is restricted to designated staff. Controlled organisms may be removed from the facility only under permits from MAF.

ICMP does not contain any bacteria or fungi that pose significant human or animal threat.

Most plant pathogenic bacteria and fungi cause a highly variable amount of damage to particular plant species, and are unlikely to cause significant harm to plants unrelated to their proved hosts. While an individual species may cause losses to an industry based on a single crop plant, it is unlikely to cause significant damage to a national economy if posed as a terror weapon.

Information resources

An online catalogue of ICMP's holdings and electronic versions of earlier printed catalogues are available at:
http://www.landcareresearch.co.nz/research/biodiversity/fungiprog/icmp.asp

Interesting educational resources for school students and the public are available at:
http://www.landcareresearch.co.nz/education

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