Microbiology Laboratories

Microbiology laboratory ... focusing on culturing organisms

The research focus in this laboratory is the culture and study of fungi growing in pure culture (many of which were isolated in the other lab). Plant material and soil samples are not allowed in to this lab to avoid the risks of cultures being contaminated. Additionally, fungi not found in the wild in New Zealand can be grown in this laboratory under strictly controlled conditions.

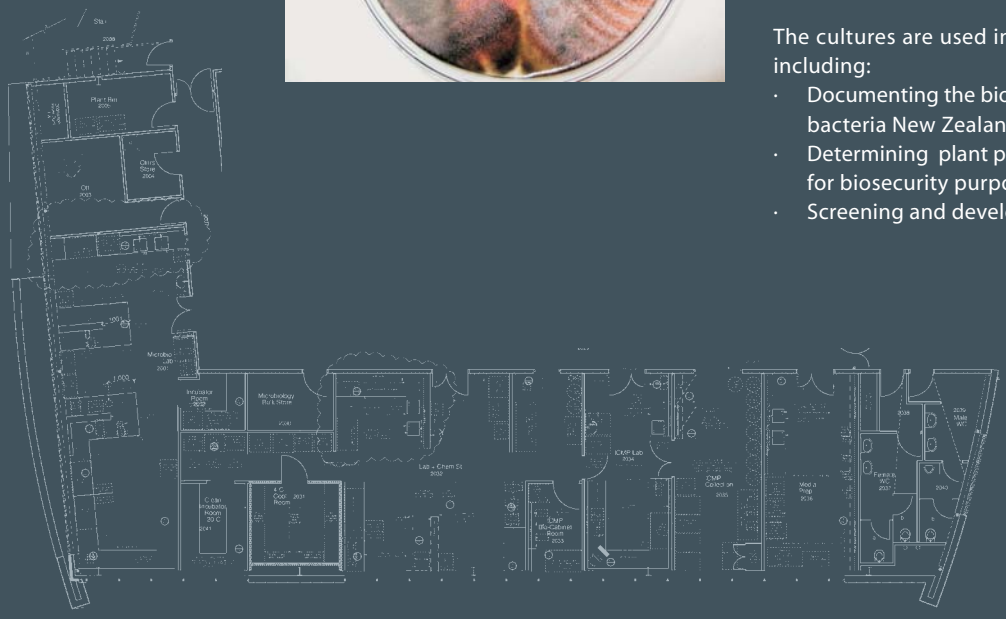
The cultures are used in a variety of projects including:

- Understanding the biodiversity of fungi at the genetic level
- Comparing local cultures with cultures derived from overseas to clarify their taxonomic relationships and thus enhance biosecurity
- Determining the properties of fungi for use in biotechnology.

Microbiology laboratory ... focusing on isolating organisms from field samples

The main purpose of this lab is the isolation and cultivation of fungi and bacteria from the environment. Samples are mostly living and dead plant material, although soil and animals substrates are also studied. Such environmental samples contain thousands of fungi, bacteria and small animals which complicate the task of isolating the target species into pure culture – sometimes the proverbial needle in the haystack.

Many of the samples we study are of plants infected by pathogens causing disease or mutualists that stimulate plant growth. The samples are initially isolated onto agar media and incubated under controlled conditions (agar media, temperature, lights). They are then identified by techniques such as microscopy, growth properties on different substrates, pathogenicity on different hosts and DNA analysis.

The cultures are used in a variety of projects including:

- Documenting the biodiversity of fungi and bacteria New Zealand
- Determining plant pathogen–host records for biosecurity purposes
- Screening and developing strains of fungi.