Expression of Interest

DAF CULTURE COLLECTION

Accessing Living Cultures of Fungi and Bacteria from the Queensland Department of Agriculture and Fisheries for Research and Commercialisation

The Queensland Department of Agriculture and Fisheries has a collection of more than 110,000 specimens, including over 90,000 fungi representing virtually all of the known plant pathogenic microfungi in Queensland. This collection is held in the Queensland Plant Pathology Herbarium (BRIP), Dutton Park, Brisbane.

BRIP comprises a herbarium of dead, dried and pressed specimens retained in packets, as well as a Culture Collection of about 23,000 living cultures of fungi and bacteria that are preserved in a metabolically inactive state. Cultures are preserved as either frozen at -80°C, freeze dried in ampoules or as cultures underwater. Each specimen is catalogued on a database that includes detailed information about the collection records.

The Culture Collection is a unique collection of mostly fungal and bacterial isolates from plants, insects and soil. The collection holds many specimens of plant pathogens, entomopathogens and endophytes that are rich in species diversity.

The Culture Collection is composed of approximately 22,000 fungi and 1,000 bacteria. This Culture Collection is Australia's largest repository of plant associated living microbes from tropical and subtropical regions. The uniqueness of the collection lies in the ≈17,000 cultures that have been isolated from Queensland, with many specimens from the tropical regions. Most of the specimens have been obtained from plants, as pathogens and endophytes, with significant collections from insects and soil.

BRIP is staffed by experienced taxonomists and molecular biologists with expert knowledge of a wide range of taxonomic groups, who have collectively discovered and described over 500 new fungal species.

Potential Opportunity

The Culture Collection is a potential source of natural products (chemicals, proteins, genes) that may have economic value in the search (bio-discovery) for novel compounds of benefit in pharmacology, biotechnology, industry and agriculture.

Access by Commercial Entities

The Department is making the collection accessible to commercial companies non-exclusively for research and potential commercialisation for an access fee. Cultures are provided under a Material Transfer Agreement.

New Surveys

The Department has collection authorities for most of Queensland's State Lands (including National Parks) and staff are available to undertake surveys on a contractual basis to derive and provide new cultures compliant with the Nagoya Protocol.

Some of the fungal groups in which the staff have specific taxonomic expertise and interest include foliar plant pathogens, entomopathogenic fungi, rainforest endophytes, and yeasts (phylloplane).

Nagoya Protocol Compliance

The Queensland Government has enacted the *Queensland Biodiscovery Act 2004* (the Act), which provides the framework for compliance with the Nagoya Protocol.

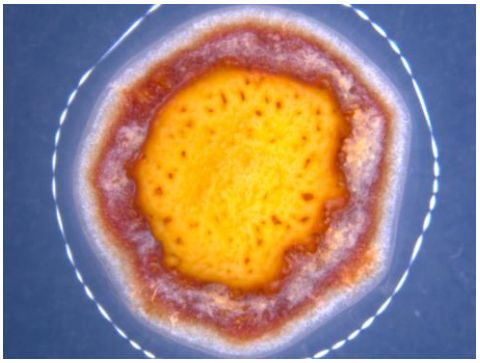
Under the Act, the Department can provide Nagoya compliant cultures for commercial purposes. To satisfy the Act, the biodiscovery entity will need an approved Biodiscovery Plan and a Benefits Sharing Agreement with the State of Queensland. The Biodiscovery Plan outlines the proposed activities and the Benefits Sharing Agreement details how benefits will be shared.

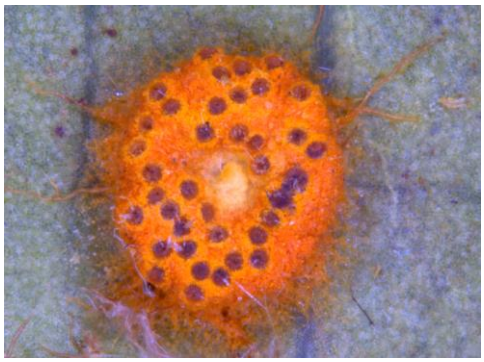
It is estimated that at least half of the cultures in the Collection are currently Nagoya compliant and many of the remaining cultures may indeed be compliant after due diligence.

http://collections.daf.qld.gov.au/web/home.html

For further information about accessing the Department's Culture Collection contact the Curator Dr Roger Shivas Roger.shivas@daf.qld.gov.au | *+61 7 3708 8478*

Three of the many unique specimens held in the DAF collection that includes many cultures of fungal pathogens of insects





The Culture Collection

The isolates held in the collection include the following:

No. of living specimens	Taxonomic group	Comment
12,900+	Sordariomycetes	Very diverse, mostly plant pathogens. Some saprobes, endophytes of plants, and insects pathogens
3,631+	Dothideomycetes	Includes many plant associated and plant pathogenic fungi
1,093+	Saccharomycetes	Mostly yeasts, many isolated from leaf surfaces of native plants in Queensland. Evidence of many new species
500+	Insect pathogens	Diverse group, several new genera and species isolated from insects in Queensland rainforests
334+	Agaricomycetes	Mushrooms, pathogens, parasites, decomposers and symbionts of both plants and animals
185+	Eurotiomycetes	Common airborne fungi that cause mould on fruits and other organic material
50+	Ustilaginomycota	Smut fungi - only a small number have been cultured as this is not necessary for identification
1,000+	Bacteria	Mostly associated with diseases of cultivated plants