



# PRODUCT REFERENCE

## **Department approved methods for the preservation of plant pathogens**

There are several methods of preservation that are approved by the department that reduce the biosecurity risk of plant pathogens.

Plant pathogens, as well as plant material infected with plant pathogens, may be imported via this pathway if one of the below preservation techniques has been used. Samples not preserved using one these methods are assumed to be viable, and must be imported via the '**Live cultures**' pathway in this BICON case.

Note: the import of viroids preserved via a department approved method for plant pathogens requires additional containment conditions. Because of the nature of these pathogens it is possible for them to remain viable and infectious throughout the preservation process.

**Department approved preservation solutions for plant pathogen material (the preservative must fill at least 80% of the container):**

#### **1. Formaldehyde or glutaraldehyde solution (2% or greater)**

These compounds fix tissues via forming chemical bonds with proteins and lipids in cells and tissues which renders actively growing cells non-viable.

## **2. CTAB (Hexadecyl trimethyl-ammonium bromide) solution (2% or greater)**

CTAB is a compound toxic to plant pathogens. It aids in DNA extraction by causing cell lysis.

**3. Alcohol such as ethanol or propanol (70% or greater).**

Simple alcohol compounds denature proteins, remove water and disrupt cell membranes to change cell permeability and cause lysis.

Specimens that have been preserved in 70-100% alcohol may be drained off prior to export to comply with the transport of dangerous goods requirements. To ensure adequate preservation, drained specimens must have been preserved in the solution for a minimum of 24 hours per 5mm thickness, prior to being drained off for transport.

## Plant pathogens preserved on FTA cards

FTA cards are coated with a mix of chemicals which cause lysis and bind and preserve DNA of tissues or cells when these are applied to the card. Once the cards are dry excess plant material is brushed off. Pathogens are inactivated by the chemicals on the card.

**Note:** Care must be taken to ensure the specimen is not contaminated with biosecurity risk material prior to or after preservation as this negates the risk-reduction quality of the preservation technique.



Image: Whatman® FTA® card