



# Plant Pathology Diagnostic Services

Let EMSL's Plant Pathology experts help identify mold growth and pathogens on your plants. The Plant Pathology Laboratory at EMSL Analytical, Inc. provides plant disease diagnostic services to the agricultural industry across the country. We employ traditional diagnostic techniques as well as modern technologies to diagnose crops diseases. The laboratory is equipped to test for fungal and bacteria plant pathogens. We routinely service the cannabis industry, field crops, trees, turfgrass, vegetables, fruits, flowers, shrubs, houseplants, or any other type of plant is welcome. Plant tissue samples are generally tested individually (per leaf, stem, etc.) but for cannabis samples call our experts for guidance before submitting samples. Mold growth on Cannabis is a serious problem for producers which can lead to costly recalls. Preventing mold growth during cultivation and processing is key to a high-quality final product. EMSL offers on site consulting services if you need us to visit your facility or agricultural fields to nip any problems in the bud (so to speak).

## Common Plant Pathogens and Contaminants Tested

- *Aspergillus*
- *Alternaria*
- *Botrytis*
- *Bipolaris*
- *Cercospora*
- *Chaetomium*
- *Colletotrichum*
- *Curvularia*
- *Cylindrocarpon*
- *Fusarium*
- *Fusicoccum*
- *Lasiodiplodia*
- *Macrophomina*
- *Mucor*
- *Penicillium*
- *Phoma*
- *Phomopsis*
- *Phytophthora*
- *Pythium*
- *Rhizoctonia*
- *Rhizopus*
- *Rhizomucor*
- *Sclerotinia*
- *Septoria*
- *Thielaviopsis*
- *Verticillium*
- Rust
- Powdery Mildew
- and many others

## Sample Collection for Fungal Testing

### Plant samples

Send as much of the plant as possible. Many diseases are the result of damage to or infections in parts of the plant that are distant from the parts of the plant that show symptoms. If possible, send in roots, stems, leaves, flowers, and even the soil around roots.

Submitting healthy plant samples is useful for comparisons.

To make an accurate and timely disease diagnosis, it is important that plant disease samples being sent to the lab arrive in the best condition possible.



Put plants in a paper bag and put paper bag in a box for shipping. Pack brittle samples in dry packing material (paper towels) so they aren't crushed during shipment.

Do not put samples in wet paper towels or in sealed plastic bags, this will cause the plant tissue to rot and will make diagnosing the problem difficult or impossible. If you are concerned that the sample will dry out before it gets to the lab, wrap cut ends in a dry paper towel and place wrapped ends in a plastic bag. Secure plastic bag to stems with rubber bands. Keep samples cool until shipping and mail samples early in the week.

### **Soil samples**

Take 4-10 small samples from different parts of the area of concern and combine them in a sealable plastic bag or soil sample bag of appropriate size. Usually 100 grams (~one quart) of soil is enough to run all soil fungi tests.

For large areas such as agriculture fields, it might be useful to submit more than one soil sample per field. For example, one sample from the north, south, east, and west quadrants of the field. If submitting soil from a diseased area, take another soil sample from an area where plants are healthy.

Put sample bags in a sturdy box and be sure to secure the sample bag opening so it doesn't open during shipment.

### **Water samples**

The optimum sample size is 0.1 to 2 Liter. Keep samples cool until and during shipment.

