



ANTHRACNOSE Anthracnose on cyclamen is a disease caused by 2 fungi:

- ✓ ***Gloeosporium cyclaminis*** (synonym of *Cryptocline cyclaminis*). Cyclamen is the only known host plant. The cases of anthracnose caused by this fungus become rare due to the improvement of the hygiene in the greenhouses.
- ✓ ***Glomerella cingulata*** (*Colletotrichum sp.*). In its imperfect form (asexual or anamorph) it is also called *Colletotrichum gloeosporioides*. It can develop on many annuals and perennials, including cyclamen. Anthracnose caused by this fungus is usually very virulent. It needs high temperatures to grow and spread. It can cause considerable damage in hot climates.



Due to lack of irrigation, the leaves turn yellow and die.

I – SYMPTOMS

The damage caused by *Colletotrichum gloeosporioides* are greater than those created by *Cryptocline cyclaminis*.

Any part of the plant may be affected.

Colletotrichum gloeosporioides

In the **heart of the plant**, the symptoms are difficult to see as they are hidden by vegetation. Buttons and buds are small, dark, bent and dried up as if burnt.

Masses of pinkish orange spores appear. They are characteristic of anthracnose.



The stems can also become bottle-shaped, swollen at the base and tightened and dry at the top.

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The stems are affected by black rot, which can go from the base of the bulb to the petals of the flower or leaf blade (as the latter is not irrigated anymore, it becomes yellow and finally dies). Then pinkish orange fructification appears.



In the early stage of the infection, small aqueous and light green round spots appear on the leaves. The tissues die, the stains dry out and become light brown in the center, surrounded by a dark halo where the fungus houses. The spots grow until they join together and form large infected areas.



Green spots at the early stage of infection, becoming brown

The initial round appearance of the spots is characteristic of Anthracnose, but is not mandatory. They may indeed have other forms as from the early stage of the infection.



Progression of the infection on the leaves

Under extreme hot and humid conditions, even the flower petals can be infected. Identical spots as those on the leaves appear.



Cryptocline cyclaminis

The tuber show discoloration and cavities which can easily be confused with *Fusarium*. The development of the disease is slower than in the case of an infection by *Colletotrichum gloeosporioides*.



Scorched heart of the plant



ANTHRACNOSE

II – PROPAGATION

The disease occurs primarily in high temperature conditions (25 / 30° C) (77-86°F) and high relative humidity (over 80%). Spores develop on wet areas and are scattered mainly by water drops from the irrigation system or the rain. Insects and the moving of plants can also be cause of transmission.

Colletotrichum gloeosporioides spreads very quickly. In 1-2 weeks, the damage is considerable.

Host plants

Other plants are often infected with the fungus, including: ranunculus, strawberry, euonymus, begonia, gardenia, gloxinia and other potted or green plants.

These plants mean risks for cyclamen, be careful not to mix the cultures!

III – PREVENTION

Chemical protection is possible, but it is expensive and does not guarantee total efficiency. It is therefore essential to establish preventive hygiene and crop management measures, and sometimes apply chemical prevention.

Gloeosporium cyclaminis occurs rarely, prevention through improved hygiene in greenhouses has helped to stop its spread. But *Glomerella cingulata* (*Colletotrichum sp*), is still very active. Preventive measures should be strictly followed.

To avoid infection it is important to:

- ✓ hygiene:
 - thoroughly clean and disinfect culture surfaces before placing the young plants
 - use clean and disinfected equipment
- ✓ culture management
 - place the cyclamen separated from other potential host plants
 - if possible, avoid outdoor cultivation under screens because of the risk of infection due to rain drops and splashes
 - space the plants sufficiently
 - ventilate to reduce the humidity degree in the greenhouse
- ✓ watering management:
 - maintain the vegetation dry by using an appropriate irrigation system (subirrigation, matting, drip system)
 - during the rooting phase, watering from above should be done in the morning to facilitate the drying of the plants during the day
- ✓ feeding with a balance N / K₂O = 1/2 to 1/3, is recommended. It makes the tissues harder and thus better resistant to disease.
- ✓ control insect populations in the greenhouse. They are likely to carry and spread the spores of a diseased plant to other healthy plants

In case of infection:

- ✓ evacuate infected plants as soon as possible
- ✓ repeat chemical treatment frequently (see below)

CHEMICAL PREVENTION

Some chemicals have proven to be efficient to prevent infection:

Active ingredient	Doses for spray system	Doses for Ultra-Low Volume system
AZOXISTROBIN 25%	100 cc/hl	1l/ha
CYPRODINIL/FLUDIOXINIL	80gr/hl	0,8 Kg/ha
PROCLORAZ 46%	50gr/hl	0,5 Kg/ha
IPRODIONE 50%	15cc/hl	0,15 l/ha

In hot and humid environments, treatment should be frequent, about once a week during the rooting phase. In that period watering takes place from above, splashing is unavoidable and represents a high risk of spreading.

When risks decrease (lower temperatures, installation of plants under a different watering system), treatment may be performed less frequently.

It is advisable to treat in the morning so that the plants can dry during the day.

WARNING: check with your local branch of Plant Protection to meet the latest updates to regulations and guidelines concerning the use of chemicals.