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Edema

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Quick Facts

Edema is a physiological disorder that occurs frequently in ornamental plants.

Edema is characterized by small watery blisters and corky spots.

Edema is caused by high levels of soil moisture and reduced transpiration.

The disorder may be prevented by providing plants with sufficient warmth, proper ventilation and adequate light.

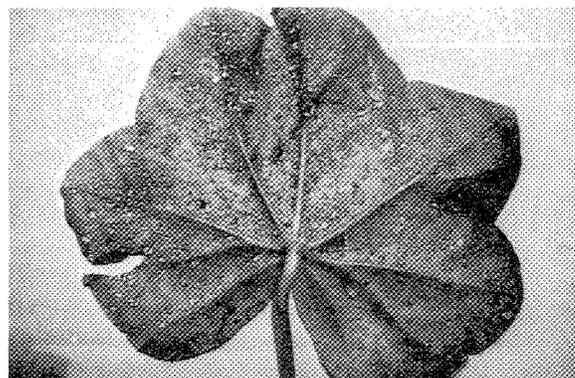


Figure 1: Leaf with small watery blisters and corky spots.

Edema is a physiological disorder occurring frequently in ornamental plants that are kept in the home or greenhouse.

Several terms have been used to describe the disorder, such as oedema, dropsy and corky scab. Edema refers to a swelling due to the accumulation of fluids.

Typically small watery blisters appear in the epidermal cells of leaf blades and petioles. This condition goes through progressive changes. Plant cell walls burst and fluids move into the intercellular spaces, thus giving a water-soaked appearance.

Usually, edema is characterized by many small blisters scattered over the leaf blade, but some blisters may combine and affect a larger area. The blisters finally become corky where the injured plant cells have undergone complete necrosis (localized death of living tissue).

Corky spots or ridges also may develop on petals and along stems and leaf petioles.

A number of interacting factors are involved in the cause of edema, such as relative humidity near the plant foliage, temperature, light, ventilation, water in the soil and atmospheric pressure.

Edema usually is associated with a *high level of soil moisture and reduced transpiration of moisture from the leaf surfaces.*

Cool, nighttime temperatures along with high relative humidity surrounding the foliage tend to suppress transpiration. While plant roots continue to absorb water, the plant does not lose enough water through transpiration. As a result, the cells in the epidermis of the leaf become gorged with water, raised blisters appear, cells burst, water-soaked and corky spots develop.

Edema occurs frequently in late winter and during cloudy weather. Cloudy weather may help cause edema by reducing the rate of transpiration, whereas a reduction in atmospheric pressure increases the rate of transpiration, thus relieving the tendency for edema to occur.

Preventive Measures

Preventive or corrective measures involve giving the plants sufficient warmth, ventilation and light. However, it is not advisable to move houseplants into direct sunlight.

As a rule, a *rise in temperature of the air* surrounding the plant will increase the rate of transpiration and thus help prevent blisters from forming from over-turgid cells.

Air movement by *ventilation* will hasten transpiration by lowering the humidity next to leaf surfaces. Plants never should be exposed to cold drafts, however.

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