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Anti-Transparent Role in Dry Land Horticulture

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SUMMARY

Compounds or substances known as antitranspirants work by decreasing the number and size of stomata on plant leaves, thereby reducing water loss from those leaves. Through transpiration, the plant loses almost all of the water it takes in.There are four varieties. This compound causes stomata to shrink in size and number, eventually making them more resistant to stress, which lowers the rate of transpiration from plant leaves.

INTRODUCTION

Antitranspirants are compounds or substances that reduce water loss from plant leaves by lowering the size and quantity of stomata. Nearly all of the water taken by the plant is lost through transpiration. Antiranspirants are any natural substances that are applied to transpiring plant surfaces in order to reduce water loss from the plant. There are four kinds. This chemical substance reduces the rate of transpiration from plant leaves by shrinking the size and quantity of stomata and eventually hardening them to stress (Ahmed et al., 2014; El Khawaga, 2013).

There are four types of antitranspirants:

1. **Stomatal closure type**:

The majority of transpirants pass via the stomata on the leaf surface. In low concentrations, fungicides such as phenyl mercuric acetate (PMA) and herbicides like as Atrazine act as antitranspirants by causing stomatal closure. These might limit photosynthesis. PMA was discovered to reduce transpiration more than photosynthesis.

2. **Film-forming type**:

A plastic or waxy material that forms a thin film on the leaf surface, resulting in a physical barrier. For instance, ethyl alcohol. It inhibits photosynthesis, for example, Tag 9; S – 789 foliate.

3. **Reflectance type**:

They are white materials that form a coating on the leaves and increase the reflectance of the leaves. By reflecting the radiation, the vapour pressure gradient is reduced, and hence transpiration is reduced. The use of a 5% kaolin spray lowers transpiration losses. Hydrated lime, calcium carbonate, magnesium carbonate, zinc sulphate, and other similar substances

4. **Growth inhibitors**:

These compounds restrict shoot development while increasing root growth, allowing plants to withstand drought. They could also cause stomatal closure. Cycocel is beneficial to the plant's water condition.

Role of anti- transpirants:

Antitranspirants are also beneficial in decreasing nursery plant transplant stress (Horticultural plants) Examples of several antiperspirants:1. Metabolic inhibitors such as phenyl mercuric acetate and some alkanyl succinic acids.2. Growth inhibitors such as A.B.A. Cycocel.3. Fungicides and herbicides four. salicylic acid Colorless plastics, silicone oil, wax, or plastic 6. White reflecting materials emulsions or white wash (for example, Kaolin). Antitranspirants generally reduce photosynthesis. Therefore, their use is limited to save the crop from death under severe moisture stress. If crop survives, it can utilise the rainfall that is received subsequently. Antitranspirants are also useful for reducing the transplantation shock of nursery plants.

Limitation of anti-transpirants:

Antitranspirants reduce the photosynthesis rate. Moreover it may increase the leaf temperature by reducing evaporative cooling. Interaction of climatic factors with anti-transpirants reduces their effectiveness for longer duration.Marginal cost may be more than marginal returns. It may also produce toxic effect on leaves.

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