CHS3403 Principles of Plant Pathology in Cannabis and Medicinal Plant

- Plant disease from environment factor

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Plant disease from environment factor

Plants grow well in proper environment, including:

- temperature
- Soil moisture
- Lighting
- Plant nutrient minerals
- Soil pH

1. Temperature

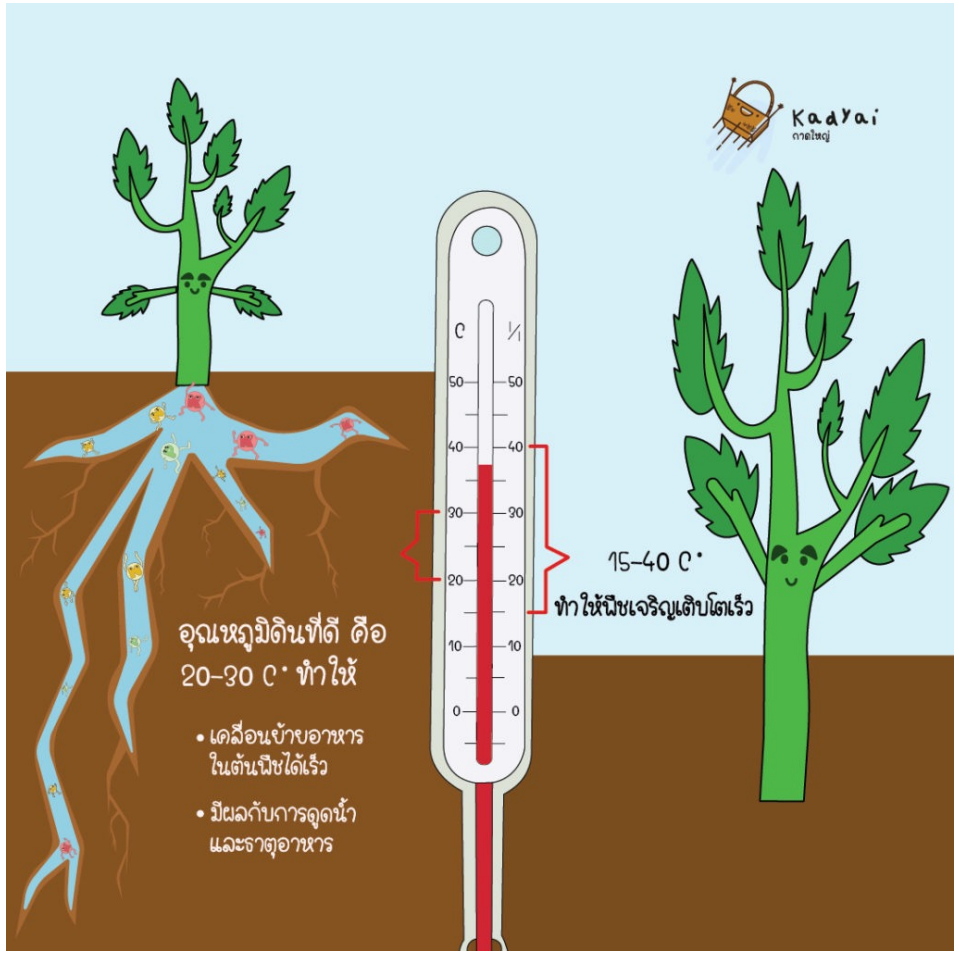
1.1 Temperature

The temperature required for plant cultivation has two parts: air temperature and soil temperature.

Air temperature: In plant growth, it only stops when the plant is exposed to too high or too low air temperature. Plants grow rapidly when they are given the right temperature.

1. Temperature

Soil temperature: affects the germination of seeds and roots. Absorbs water and nutrients in the soil. The change of soil temperature depends on the solar radiation. The soil temperature must be suitable for each plant. It is necessary to adjust soil temperature to make plants grow well and thrive. For example: Plants are planted on the surface of the soil or on the amount of water in the soil.



1. Temperature

1.2 There are two ways to adjust the soil temperature to suit.

1. Cultivation of cover crops That helps block sunlight from directly hitting the ground surface during the day. It also helps the soil to transfer heat at night.

1. Temperature

2. Use temperature-controlled mulch such as rice straw, straw, plastic to help control the temperature within the soil to change less.

1. Temperature

1.3 Effects of temperature on plants

1. Help plants grow
2. Help make plants
3. Helps to decompose organic matter
4. Enhance the solution of various minerals.
5. As the temperature increases, the crop growth rate increases.

2. Soil moisture

soil moisture It is a factor that is very important to the growth of plants. If the soil has little moisture The amount of water is insufficient for plant use. It will cause the plant growth rate to decrease.

2.1 Soil moisture: Soil moisture consists of two states:

-Liquid, we call it soil water.

-The gas state is called soil vapor.

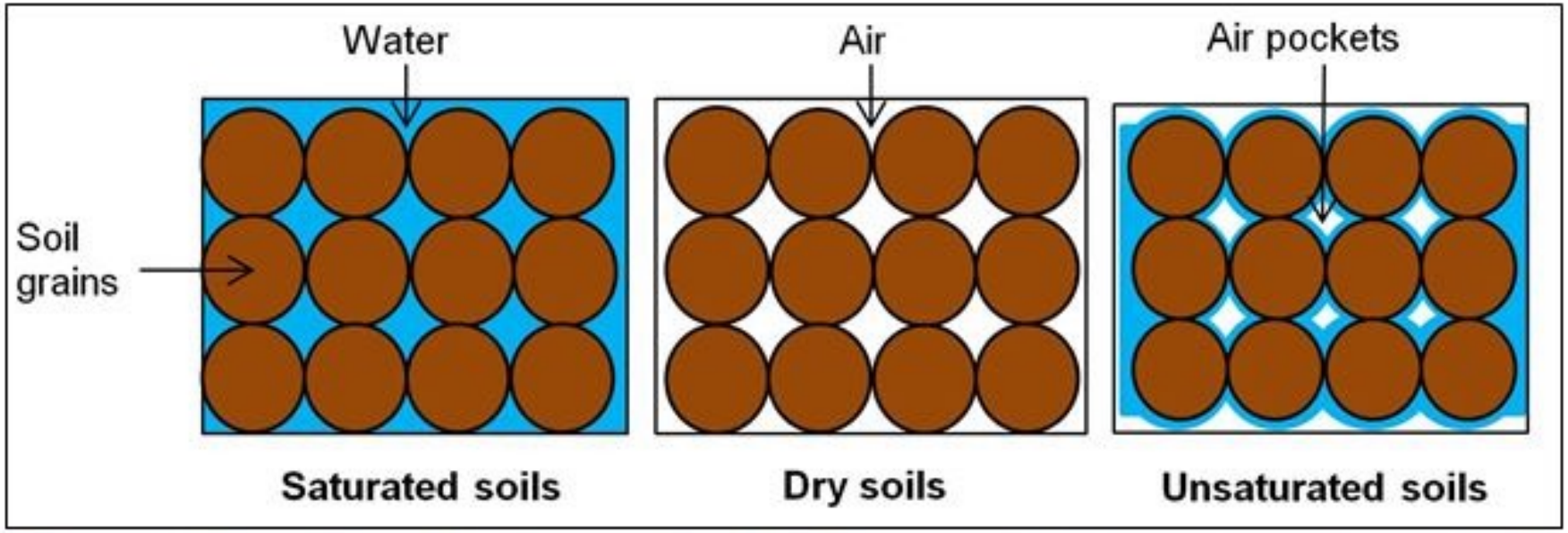
In extremely cold countries, soil moisture may exist in the form of ice. In tropical countries, soil moisture mainly exists in the form of liquid.

2. Soil moisture

2.1 Soil moisture

Soil moisture and water in soil have the same meaning, that is, the liquid part.

- If the gap in the soil is filled with water, there is no gas at all, and it is called saturated soil.
- If there is both water and gas in the soil gap, it is called unsaturated soil.



2. Soil moisture

2.2 There are three types of soil moisture beneficial to plants:

1) Available water refers to the water absorbed by plants from the soil under the soil absorption capacity. In proportion to the evaporation rate of plants.

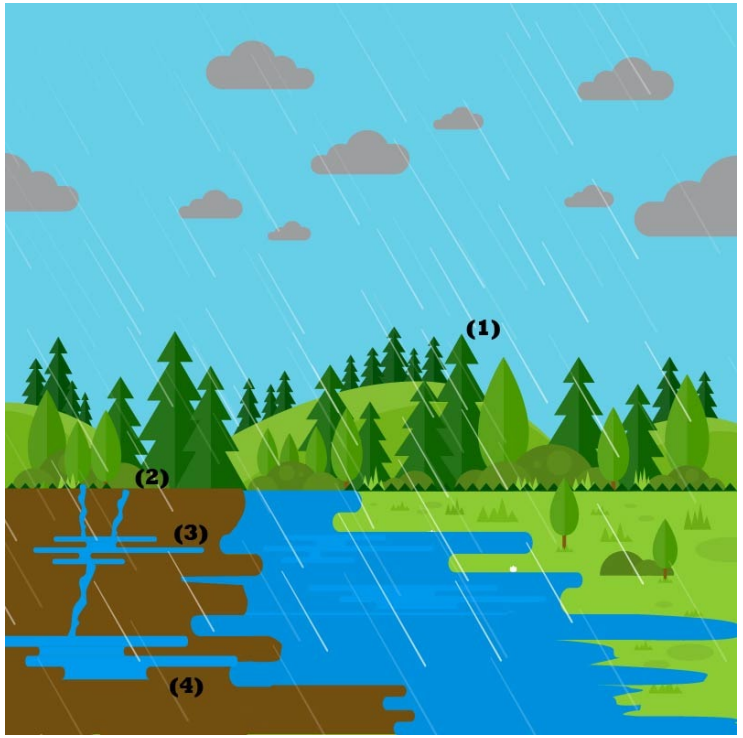
2) Unavailable humidity means The soil water absorbed is more than the energy absorbed by plants, and is used at a speed equivalent to the evaporation rate of plant water.

3) Excess water refers to the water that exceeds the normal suction of the soil. It is usually trapped in a large space in the air when there is an opportunity to move from the root to the depth of the soil cross-section. Affected by the gravity of the earth.

2. Soil moisture

2.3 Soil hygroscopicity

After the rain, some water is discharged from the soil, and the soil is kept moist for a period of time. Some water can still remain in the soil gap and not be completely discharged, which indicates that the soil is attractive to this amount. This attraction can be divided. 2. Features:

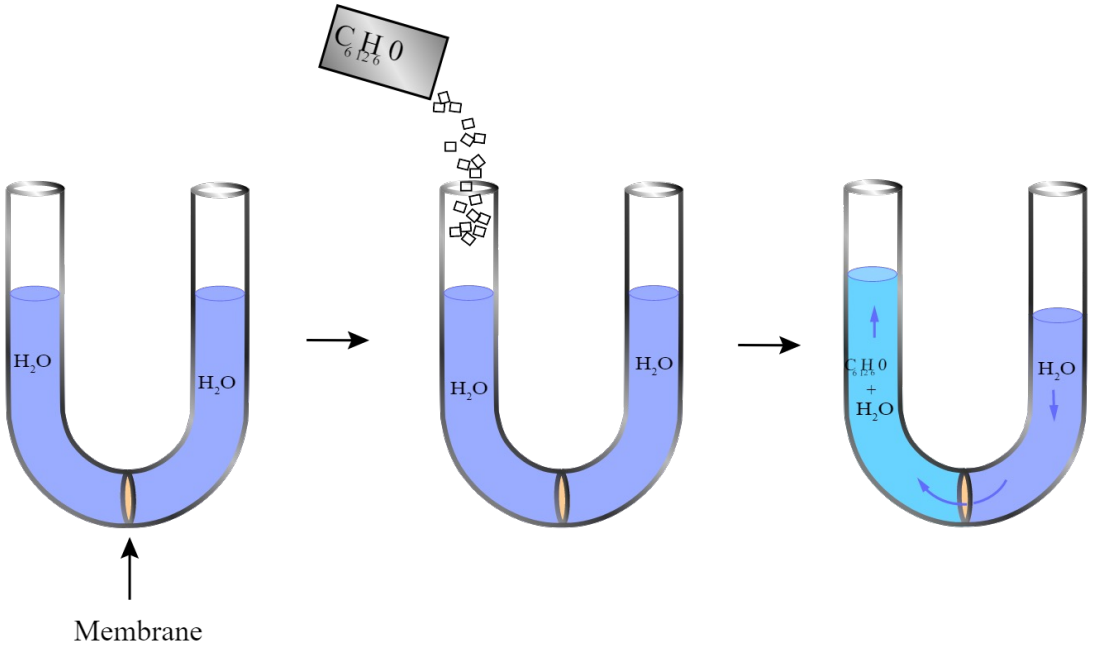


1) Adsorption (adsorption) the adsorption of water molecules on the soil particle surface, especially the surface of the particle. The charge arises from the polar properties of the water molecules. This absorption usually occurs when the soil moisture level is relatively low.

2. Soil moisture

2.3 Soil hygroscopicity

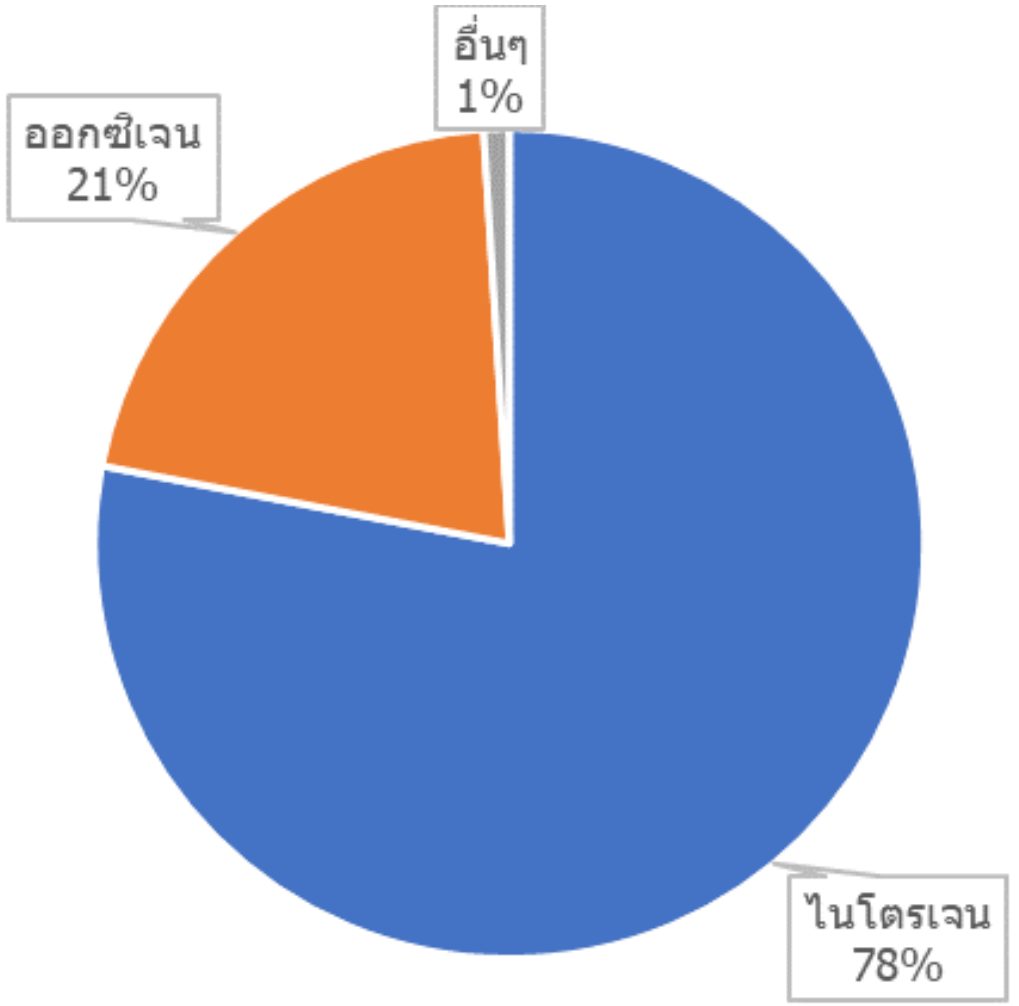
2) Osmosis. The water in the soil contains various solutions. It is dissolved or suspended in various ions. In particular, cations are absorbed by the outer surface of negatively charged clays. And make the ion concentration in the absorbed positive ion layer higher than the total solution.



The soil with salt solution has the potential to absorb water to itself a lot.

3. Pollution

Air is essential to the life of humans, plants and animals. The air mixture consists of 78% nitrogen, 21% oxygen, and about 1% other components including water vapor and carbon dioxide.



3. Pollution

Pollution mainly damages plants in the form of gas and dust, such as storing plants in less ventilated warehouses.

- Plants may be damaged to a large extent by ethylene gas produced by plants themselves.
- For crops grown in the field, due to hydrogen fluoride, nitrogen dioxide, ozone peroxynitrate (PAN), Sulfur dioxide and various powders
- The symptoms of plant damage depend on the concentration. How long can plants last?

3. Pollution

Symptoms of diseases caused by pollution

Symptoms	pollution	Note
1. The upper leaf surface is white, such as an orange that has been damaged by heavy fog.	ozone	It is caused by the reaction of oxygen and hydrocarbon in automobile exhaust.
2. The lower leaf surface shine like silve	Peroxyacyl nitrate	It is caused by the reaction of hydrocarbons and NO2 in vehicle exhaust.

3. Pollution

อาการของโรคที่เกิดจากมลพิษ

อาการของโรค	สารพิษ	หมายเหตุ
3. The leaf tissue has necrosis.	Sulfur dioxide	From the combustion of oil, charcoal and minerals.
4. Defoliation, uneven flowering and abnormal plant growth	Ethylene	from the combustion of natural gas
5. The edge of the leaf has necrosis.	Fluorine/Fluoride	waste from ceramic factory, fertilize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