

(SISTEM GERAK
PADA
TUMBUHAN)

One of the characteristics of living things are moving. What about plants?

Plants also move though in a different way with animals. Plants is very limited motion, can not move (passive motion), while animals can move (motion activated).

Plants can respond to or respond to certain stimuli from the environment by moving most of his body. Stimuli were meant to be light, water, chemical, gravity, and others.

Gerak endonom yaitu gerak tumbuhan bukan karena rangsangan dari luar/ berasal dari dalam.

Gerak etionom yaitu gerak tumbuhan yang disebabkan karena rangsang dari luar.

A. ETIONOM MOTION

Motion etionom plant movement is a reaction caused by the presence of external stimuli.

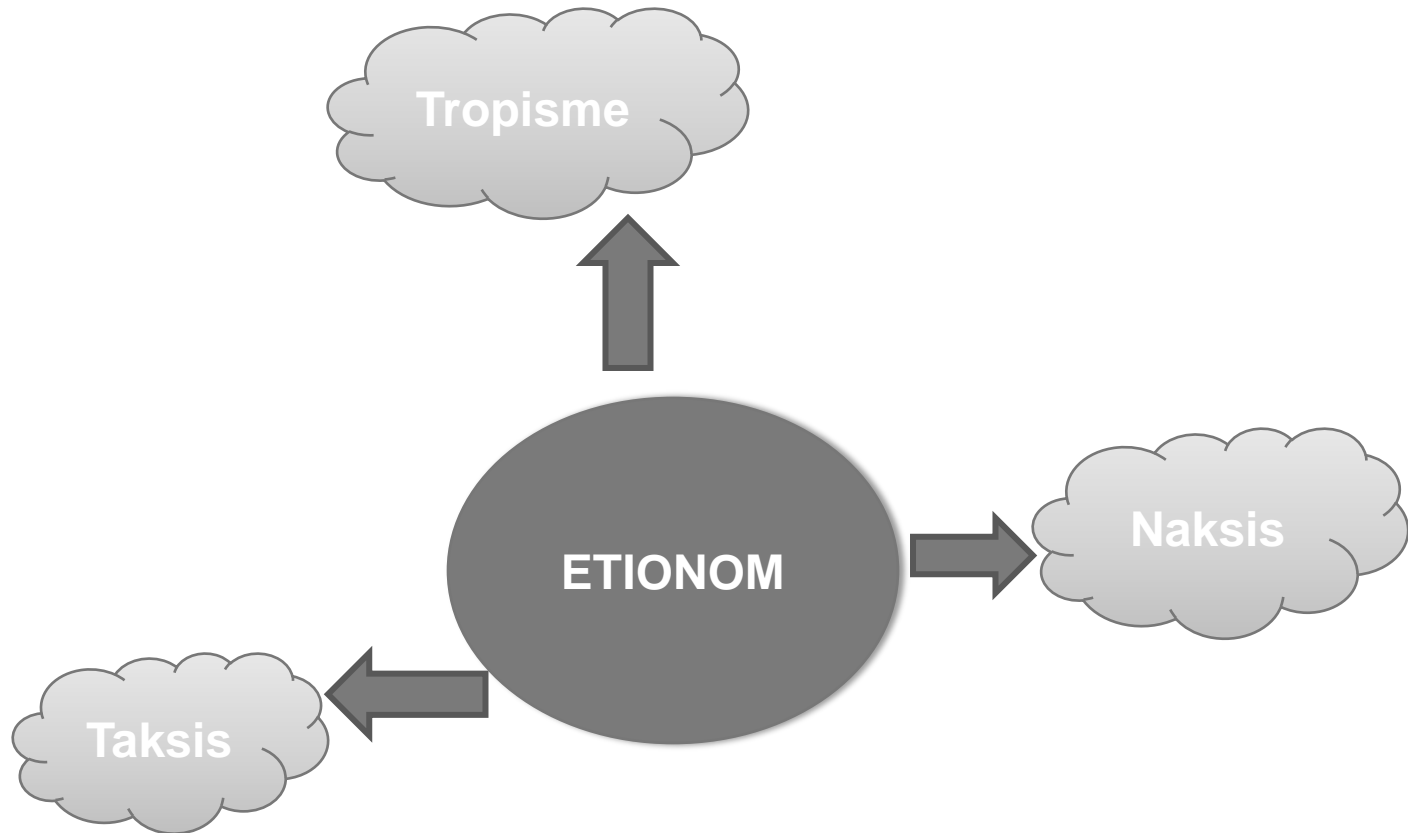
The motion can be divided into motion etionomis taksis, tropism, and Nasti.

Tropism is move only part of the plant.

Taksis is if that move throughout the plant .

Nasti is if the motion is not influenced by the direction of the motion stimuli .

ETIONOM



the movement of plant parts affected the direction of the direction of motion stimuli.

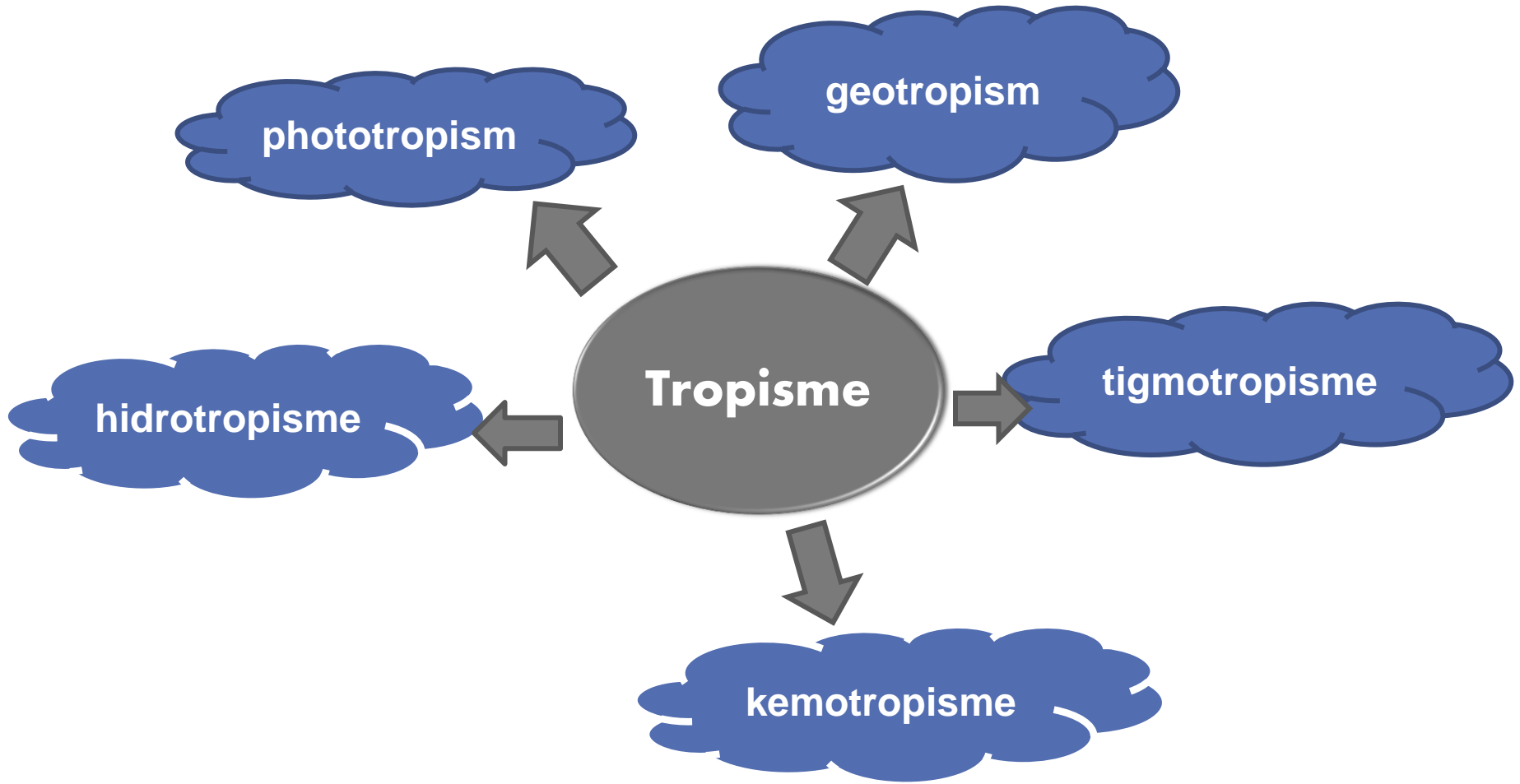
The moving parts such as branches, leaves, flower buds or shoots.

Motion tropism can be divided into

- a.positive when the motion is toward the source of stimulation**
- b.negative tropism when motion is away from the source of stimulation.**

Tropism can be divided again into

- a.phototropism**
- b.geotropism**
- c.hidrotropisme**
- d.kemotropisme**
- e.tigmotropisme.**



A. PHOTOTROPISM

Phototropism is moving parts of the plant due to light stimulus.

The motion of plant parts moving towards light is called positive phototropism.

For example, the motion of the rod tip plants are turning towards the light.



B. GEOTROPISM



❖ earth (geo = earth).

Geotropism motion parts of the plant are due to the gravitational influence.

❖ If the direction of motion is called geotropism toward positive stimuli.

Such as movement of the roots toward the ground.

❖ If the direction of motion is called geotropism away from negative stimuli.

Such as movement away from the soil to grow stem.

C.HIDROTROPISM

E

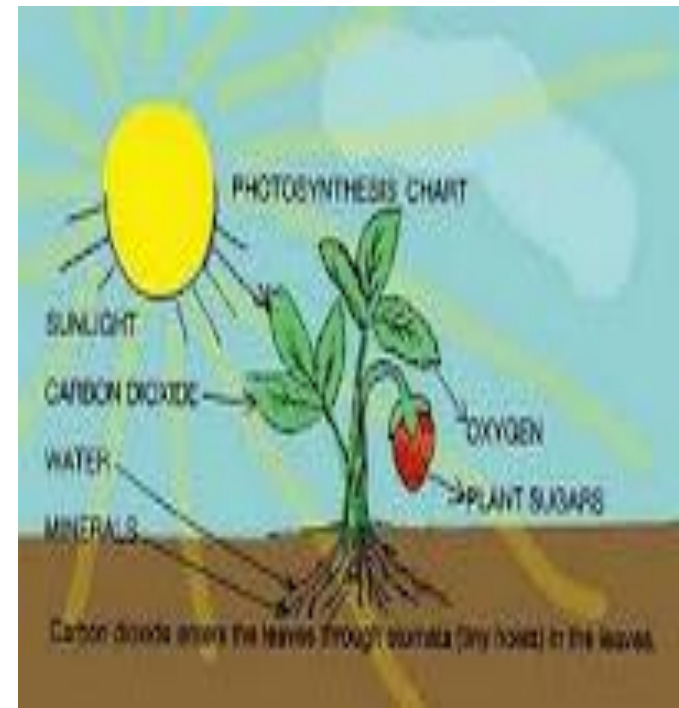
Hidrotropism motion parts of the plant are due to stimulation of water (hydro = water).

If the motion is close to the water, it is called positive hidrotropism.

For example, plant roots grow motion many waters towards the ground. If plants grow away.

hidrotropism is called negative.

For example, the motion of the stem shoots that grow up water.



D.KEMOTROPISM

E

Kemotropisme are moving parts of the plant as a chemical stimulus.

If the motion approaching certain chemicals called kemotropisme positive. For example, the movement of substances in the soil towards the roots.

If the movement away from certain chemicals called kemotropisme negative, for example, the motion of the roots away from the poison.

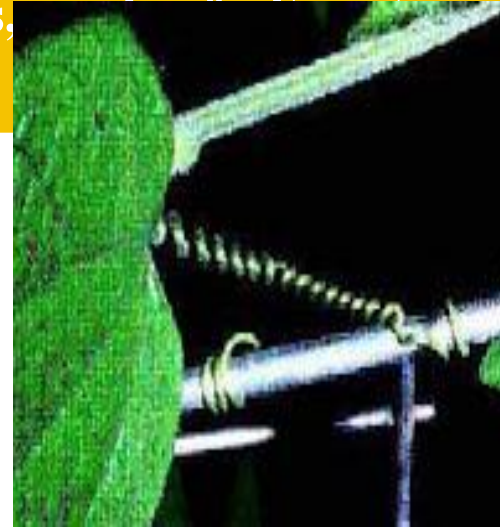
E.TIGMOTROPISM

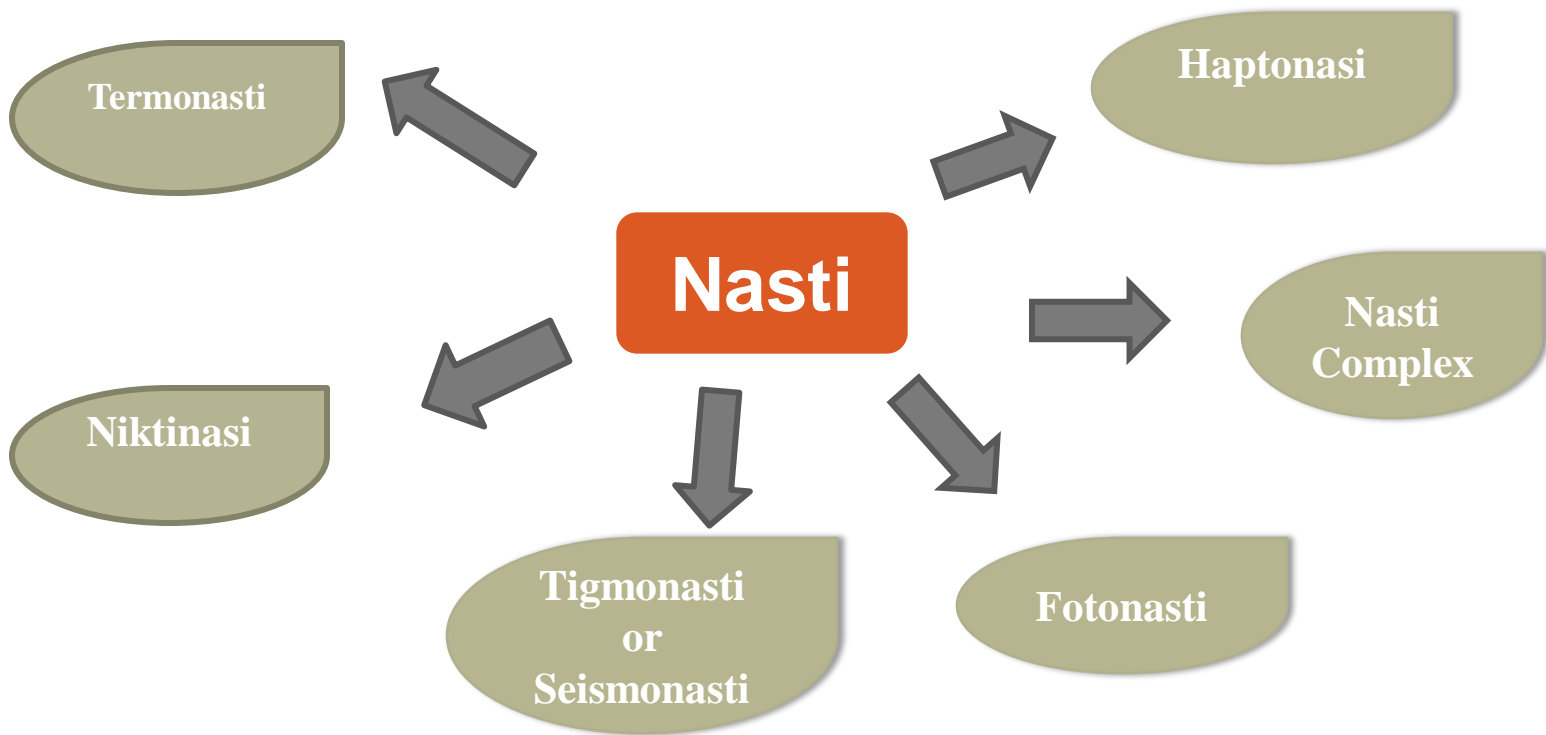
E

The motion of parts of the plant due to the stimulation of one side or the touch interface called thigmotropism.

This movement was evident at the end of the stem or twist motion ends and Passiflora tendrils of Cucurbitaceae.

Examples of plants that exhibit thigmotropism are the climbing plant, the pea, and cucumber.





a. Fotonasti



b. Niktinasi



c. Tigmonasti or Seismonasti

nasty movement caused by excitatory touch or vibration. Sample motion to close the leaves sikejut or putrid embarrassment (Mimosa pudica), to the touch. If only one child leaves stimulated by touch, stimulation was forwarded to all other leaves of plants so that children come shut.



(a) Unstimulated state

(b) Stimulated state

d. Termonasti

Termonasti a motion Rangsang Nasti caused by temperature, such as tulips and crocus blooms. The flowers are blooming when a sudden rise in temperature, and will close again when the temperature decreases.



e.Haptonasi

f.Nasti Complex



Motion the whole body or parts of the plant body move and the direction of displacement affected stimuli. Sources close to the movement direction is referred to as taksis positive stimuli and away from negative sources of stimuli is called taksis. While the kinds or sources of stimulation taksis include light, chemical, and electrical stimuli.

b. chemotaxis. When stimulation in the form of chemical substances.

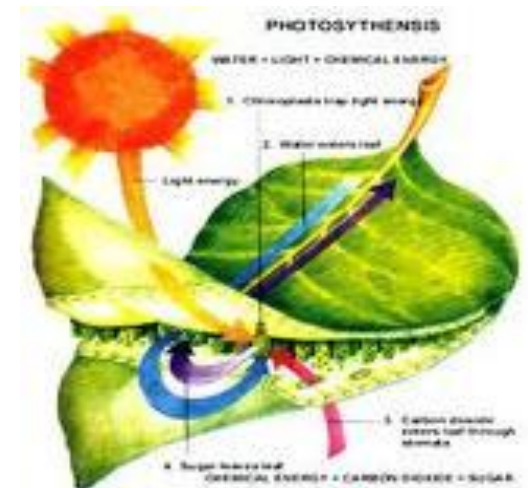
For example : rangsang berupa bahan kimia, misalnya gerak sperma dari benang sari menuju ke ovum pada putik bunga.

b. fototaksis yaitu rangsang berupa Cahaya. misalnya gerak kloroplas kebagian sel yang terkena cahaya

HOW FLOWERING PLANTS REPRODUCE



Kemotaksis



fototaksis

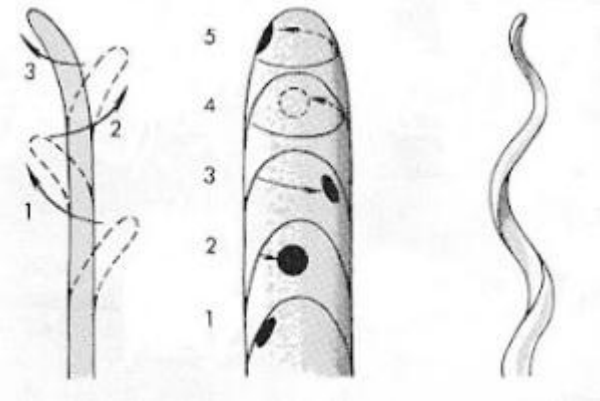
GERAK ENDONOM

Gerak endonom sering dikenal sebagai gerak spontan dari tumbuhan karena tumbuhan melakukan gerakan secara spontan tanpa adanya pengaruh rangsangan dari luar.

gerak tumbuhan yang disebabkan oleh rangsangan atau faktor-faktor yang berasal dari dalam tumbuhan itu sendiri. Gerak endonom disebut juga autonom (gerak spontan)

▪ **Nutasi**, yaitu gerak suatu ujung batang yang sedang tumbuh atau gerak organ lain seperti daun, stolon, tangkai bunga dan akar, yang gerakannya membentuk lintasan melingkar di udara.

Contohnya, gerak ujung daun *Desmodium gyrans* dan beberapa jenis Leguminosae lainnya. Beberapa pohon yang memanjat mengadakan gerak ototnom dengan melingkari batang yang ditempelinya.

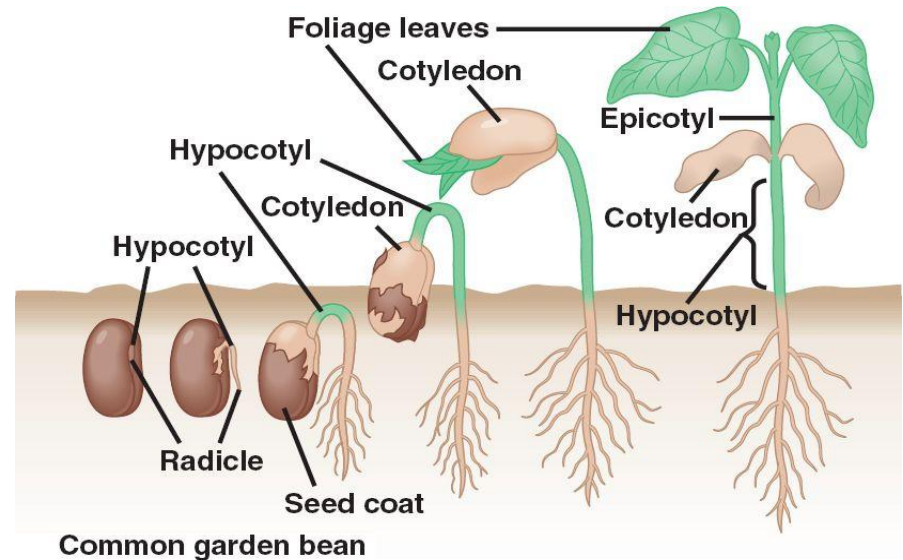


- Gerak higroskopis

merupakan gerak bagian tumbuhan yang disebabkan oleh perubahan kadar air di dalam bagian tumbuhan.

Misalnya pecahnya kulit buah polong-polongan seperti pada perkecambahan, pecahnya kulit buah tumbuhan pacar air, membukanya kotak spora (sporangium) pada tumbuhan lumut dan paku saat mengeluarkan spora.

Ket. *pecahnya kulit biji kacang*



1.Mardiyanti

(bahan kimia apa yang merangsang zat gamet jantan menuju ke sel gamet betina?)

2.Dyah Paramita.

(apakah ada selain geotropisme ada yang positif dan negatif?)

3. Isnaeni

(seperapa pengaruh gerak tumbuhan terhadap perkembangan dan pertumbuhan tanaman.)

Tanaman merambat termasuk gerak apa?apakah kalau terkena cahaya akan mengikutinya?