

MECHANISM OF MOTION IN WIJAYA KUSUMA FLOWER PLANT (*Epiphyllum anguliger*): QUEEN OF THE NIGHT AS A SOURCE OF LEARNING PLANT PHYSIOLOGY

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Abstract

Plants are living things just like humans and animals. Plants also move which aims to show irritability and to respond to the stimuli it receives. Movement in plants is divided into several categories, one of which is the motion of tropism, which is also divided into more specific movements. This writing aims to find out and study the mechanism of motion of the wijaya Kusuma flower. Wijaya Kusuma Flower Plants are plants that have special movements and are different from the movements of other plants. Most people do not know that the movement of the wijaya kusuma flower plant is called scototropism. This motion can also be said to be negative phototropism because the plant will move away from the sun when the light comes close to the plant. One of the characteristics of the Wijaya Kusuma flower itself is that it can only bloom at night for between 1 and 2 hours and will wither the next morning.

Keywords: *Light; wijaya kusuma flowers; scototropism; plant motion; evening*

1. Introduction

Indonesia is a very rich country ranging from biodiversity, sea, and amazing natural beauty, on the other hand there is also an abundant diversity of flora and fauna, one of which is from the type of flora that is considered to have distinctive characteristics and is different from other plants. Although not native to Indonesia, this plant can grow well because it is supported by tropical temperatures in this country.

Wijaya Kusuma flower has the Latin name *Epiphyllum anguliger* or better known as the queen of the night: *Queen of the Night* is

The plant is a cactus and belongs to one type of cactus that is classified as an ornamental plant that can be cultivated. This plant originated from the mainland of the American continent precisely in Mexico and spread to the Asian continent. Wijaya Kusuma has flowers with a large and circular shape, white in color and fragrant when blooming. (Kharisma Ryan, 2022)

Just like plants or plants in general, Wijaya Kusuma flowers also experience movements that aim to respond to stimuli or stimuli received from outside. Motion in the flower of Wijaya Kusuma is called skototropism or can be equated to

with negative phototropism because this flower moves away from the direction of the stimulus. As for the photosynthesis process, the wijaya kusuma flower occurs at night or occurs in a dark reaction that only requires carbon dioxide, so that the results of this photosynthesis process will make this flower smell very fragrant when it blooms, hence the nickname of the queen of the night given to the wijaya kusuma flower. In addition to only being able to bloom at night, this flower can also only survive showing its beauty overnight and will wither the next morning. (Primasiwi, 2022)

As a plant that can be cultivated, wijaya kusuma flowers can be planted using the cuttings technique, besides that wijaya kusuma flowers also have a variety of benefits, starting from heat-reducing drugs, itching drugs, rheumatism, diabetes to cancer drugs. (Setiawan, 2019)

2. Research Methods

This research was conducted using the literature review method from several journals that discuss motion in plants, Wijaya Kusuma flowers, flowering phenology, development factors and growth of Wijaya Kusuma flowers and the benefits provided by Wijaya Kusuma flowers.

3. Discussion

3.1 Bunga Wijaya Kusuma

Epiphyllum anguliger or better known as Bunga Wijaya Kusuma is a similar plant and one family with cactus. Wijaya Kusuma flower is one of

a type of cactus that is classified as an ornamental plant that can be cultivated. The Kusuma wijaya flower plant comes from the tropical rainforest area of the American continent, precisely the countries of Venezuela and Mesiko South America and spreads from China to Indonesia. Wijaya Kusuma has flowers with a large and circular shape, white in color and fragrant when blooming. (Kharisma Ryan, 2022)

The wijaya kusuma flower has a classification like plants in general, which is as follows:

Kingdom : Plantae
 Division : Magnoliophyta
 Class : Magnoliopsida
 Order : Caryophyllales
 Family : *Cactaceae*
 Genus : *Epiphyllum*
 Species :
Epiphyllum anguliger
 (Lem.) G. Don.

And has a different name in each region, namely:

1. Malaysia= Bakwali
2. Country of China= Keng hwah
3. English Country= *Queen of the night*
4. Country of Indi= Nishagandhi
5. State of Indonesia = Wijaya kusuma. (Setiawan, 2019)



Figure 1. Wijaya Kusuma flower

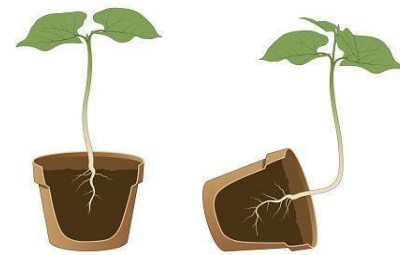
The meaning of the name of the wijaya kusuma flower is taken from the heirloom of Prabu Kresno in the Javanese puppet story taken from the word wijaya kusuma which means beauty which symbolizes panguripan or lifestyle. As a whole, it symbolizes a beautiful and sufficient life so that it has a respected position in society. (Amarasthi Nesia, 2021)

In line with that, the wijaya kusuma flower also has a morphology that is an ornamental plant that has a height of 1-2 meters, black fibrous roots, cylindrical stems formed from old leaf blades that shrink and harden, the leaves are flat and elongated, green with a smooth surface without spines, and wavy leaf edges. The length of the leaves ranges from 10-15 cm and flowers will grow on the edge. The flower is 10 cm in diameter, white and smells good when it blooms at night which is only a few hours later withers and falls off, has a round, gummy, red fruit with black seeds. (Setiawan, 2019)

3.2 Movement in Plants (Scototropism)

Plants are living things as well as animals and humans in which plants also perform motion in his life but motion plants are limited and can only be done in certain parts of the plant body for example at the tip of the shoot, the tip of the root, or part of a particular leaf sheet only. Plant motion is distinguished

into 2 types based on the source of stimulation, namely endonomous motion and motion esionom. In esionom motion is divided into several types of motion again, one of which is the motion of Tropism in which there is a plant motion called phototropism.(Wiraatmaja, 2017).



Root tip motion

Motion phototropism is also divided into 2 namely positive phototropism, which is the motion of plants approaching the stimulus or the direction of sunlight that generally all plants experience this motion. While negative phototropism is the motion of plants will move away from the direction of the stimulus or light. Just like plants or plants in general Wijaya Kusuma Flowers also experience Motion which aims to respond to stimuli or stimulus received from outside.

However, the wijaya kusuma flower has a special motion that causes the flowers to bloom at night, this is what distinguishes it from most plants in general, namely Skototropism Motion, the word skoto means dark and is combined with the word tropism to become skototropism. Another term that has the same meaning, namely negative phototropism. This movement is the motion of plants away from light.

This is occurs due to stimuli received by plant cells so that the flowers will bloom when the light begins to dim or disappear. In the wiaya kusuma flower, the photosynthesis process also occurs but does not require sunlight where the photosynthesis process occurs when the sunlight begins to sink or in the sense that the wijaya kusuma flower will experience the photosynthesis process during a dark reaction that only requires carbon dioxide, this is what causes the wijaya kusuma flower to have a very fragrant smell because it comes from the substance resulting from the photosynthesis process. (Anonymous, n.d.)

5. CONCLUSION

Based on the explanation of the flower of vijaya kusuma and the motion that occurs in the plant, it can be concluded that the flower of vijaya kusuma moves like other plants. However, the motion of the wijaya kusuma flower is classified as a special motion called skototropism or can be equated with negative phototropism which means that plants will move away from the direction of stimulation or sunlight (will move towards darkness). Wijaya kusuma flowers can only bloom at night and emit a fragrant aroma with a limited flowering period and will wither the next morning. Therefore, the flower is often dubbed as the *queen of the night*.

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