

The study of Air Quality Affects the Growth of Tillandsia usneoides

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Abstract

This study on the effect of air quality on the growth of Tillandsia usneoides in Ban Pho Subdistrict, Mueang Trang Province, aims to
1) To investigate the effect of air quality on the growth of Tillandsia usneoides in the area.
2) To compare the growth of Tillandsia usneoides under supervision in Ban Pho Subdistrict, Mueang Trang District, Trang Province.
Different treatments were conducted by 1) measuring air quality, including temperature and humidity, and 2) studying the length of Tillandsia usneoides with two different treatment methods: Method 1 involved Thinning out Tillandsia usneoides before watering.
Method 2 of watering: Do not be thinning out the beard of Tillandsia usneoides before watering. It was found that Thinning out of Tillandsia usneoides before watering every time resulted in it grows better without thinning the Tillandsia usneoides before watering.
Keywords: Tillandsia usneoides, air quality, treatment methods

Research Question

1. Air quality affects the growth of the Tillandsia usneoides. In the area of Ban Pho Subdistrict, Mueang Trang District, Trang Province?
2. Growth of the Tillandsia usneoides Under 2 different treatments, there are 2 different methods: Method 1) Thinning out Tillandsia usneoides before spraying water. Method 2) Do not be thinning out Tillandsia usneoides before spraying water. By controlling environmental factors to be the same. Is there a difference in growth?

Introduction

Tillandsia usneoides, commonly known as Hermit Beard, is a plant based on the epiphyte group that does not have real roots for nutrient absorption. No soil is required for planting, as the roots function only to attach the plant to supporting materials or structures. Factors necessary for the growth of Hermit Beard include adequate water supply, appropriate sunlight levels, and a well-ventilated environment. The stem of Hermit Beard is characterized by long, slender, silver-gray strands that hang from tree branches or cling to various materials. The leaves are small, narrow, and elongated, and are covered with fine hairs called trichomes. These trichomes play an important role in absorbing water and nutrients directly from the air. In addition, Tillandsia usneoides produces small flowers with a delicate aroma and often blooms during the winter months.

Notably, the plant has the ability to absorb dust and airborne nutrients through the silver trichomes on the leaf surface. This characteristic contributes to reducing fine particulate matter such as PM2.5, thereby helping to improve air quality and create a purer atmosphere. Furthermore, Hermit Beard can be planted as a natural curtain, which helps block sunlight and effectively reduce wind loads.

Based on the benefits and ease of cultivation of Tillandsia usneoides, which contribute to creating positive climatic effects within the community, the research team studied factors affecting the growth of Hermit Beard. This study involved analyzing air quality and comparing differences in plant growth under varying care conditions while controlling environmental factors to be as consistent as possible. All Tillandsia usneoides specimens were hung in the same area to ensure they received similar levels of light, temperature, and humidity from the surrounding environment. Additionally, the results may support sustainable urban design and environmentally friendly planting practices in the future.

Research Methods

Materials and equipment

- 1) Wet bulb thermometer
- 2) Dry bulbous thermometer
- 3) Psychrometer
- 4) Tape measure
- 5) Hermit beard tree
- 6) Water Spray
- 7) Google Maps

How the research was conducted

Designate study points

Tillandsia usneoides are planted in the same area and have the same environmental factors.

Part 1 to study the air quality that affects the growth of Tillandsia usneoides. In the area of Ban Pho Subdistrict, Mueang Trang District, Trang Province

Relative humidity in air and climate are measured using dry mercury thermometers and wet mercury thermometers and the relative humidity values are determined.

Part 2 To compare the differences in the growth of a Tillandsia usneoides under 2 different treatments: Method 1: Trimming the Tillandsia usneoides before water injection. Method 2: Do not trim the Tillandsia usneoides before spraying water. By controlling environmental factors to be the same.

2.1) Selected 6 Tillandsia usneoides trees with complete characteristics and similar size.

2.2) Divide the Tillandsia usneoides into 2 groups of 3 trees each, with different experimental conditions. As follows:

Group 1: Trim the Tillandsia usneoides before spraying water to moisten the entire plant once a day in the morning.
Group 2: Do not trim the Tillandsia usneoides before spraying water to moisten the entire plant once a day in the morning. They have done the same for 15 days.

2.3) Measuring the length of the Tillandsia usneoides in the morning hours Using a tape measure to measure and measure in the same position of the tree. To ensure that the information is accurate and consistent by continuous recording of measurement results for a period of 15 days.



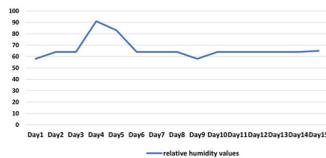
Geographical coordinates		
Area	Latitude(N)	Longitude(E)
Ban Pho Subdistrict	7.58211	99.61991

Results

Study of air quality affects the Growth of Tillandsia usneoides in the area of Ban Pho Subdistrict, Mueang Trang District, Trang Province. From the bar chart showing the average length of the Tillandsia usneoides, it is found thinning out Tillandsia usneoides before spraying water is more likely to affect the length of the Tillandsia usneoides than not striking it before spraying water. This is due to the biological variability of the plant or the influence of other factors that are not yet fully controlled.

Figure 1

Graph showing relative humidity values

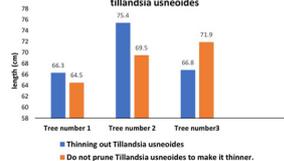


Picture 1 Graph showing relative humidity values

From the graph showing the relative humidity value, it was found that the relative humidity value was similar for all 15 days. This makes the weather hot and humid, which is very suitable for the growth of the Tillandsia usneoides.

Figure 2

The bar chart shows the average length the Tillandsia usneoides



Picture 2 The bar chart shows the average length of the Tillandsia usneoides

From the bar chart showing the average length of the Tillandsia usneoides, it is found that combining the Tillandsia usneoides before spraying water is more likely to affect the length of Tillandsia usneoides than not striking it before spraying water. This reflects the biological variability of the plant or the influence of other factors that are not yet completely controlled.

Discussion

According to studies of air quality that affects the growth of Tillandsia usneoides, it is based on the study of air quality that affects the growth of Tillandsia usneoides. Hypotheses that air quality affects the growth of Tillandsia usneoides, and the growth of Tillandsia usneoides. Under different plant maintenance treatments. 2 Methods include Method 1) Thinning out Tillandsia usneoides before spraying. Water. Method 2) Do not Thin out Tillandsia usneoides before spraying water. By controlling the environment. Environmental factors to be the same. The environment with suitable relative humidity results in. Better growth of Tillandsia usneoides, and Tillandsia usneoides before water spraying has better growth. Tendency than not to be thinning out Tillandsia usneoides before spraying water. However, the effect of such Tillandsia usneoides is not uniformly displayed on all hermit mustache trees.

Conclusions

According to studies of air quality that affects the growth of Tillandsia usneoides. The environment with suitable relative humidity results in better growth of Tillandsia usneoides. And Thinning out before water spraying has better growth. Tendency than not Thinning out Tillandsia usneoides before spraying water. The effect of such Tillandsia usneoides is not uniformly displayed on all Tillandsia usneoides. Additional suggestions
1) Increase the area of education 2) Increase the time to study the growth of Tillandsia usneoides.

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