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Application of Plant Fertilizer Serum Using Natural Ingredients

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Abstract. In this pandemic period, many people are starting to look for new activities, one of which is planting ornamental plants or other plants. Apart from being an aesthetic building, plants are also able to produce oxygen for the environment around the house. The purpose of this research is to educate every new or existing community. has been involved in growing plants for a long time. The method used is qualitative. The application is done by mixing natural ingredients and then extracting them and giving them to plants by watering or spraying them so that they grow quickly. The results that will appear on plants will grow faster than plants that do not. using serum. The results of this serum will increase plant growth 75% faster than plants that do not use this serum. And the benefits of having a serum can increase plant growth faster than usual and the use of this serum will be safe for plants because it uses natural ingredients and hobbyists or cultivators will quickly get results from these plants.

Keywords: Fertilizer, Natural Ingredient, Application

1. Introduction

Along with the pandemic, many people are starting to like plants, be it ornamental plants or other plants to just fill their spare time or also as a new hobby. The application of this serum can help the community and ornamental plant sellers in developing ornamental plants.Ornamental plants are plants that can fulfill psychological needs, improve the environment, and have a satisfaction value as a hobby. Functionally, ornamental plants can help renew/add oxygen in the air, helping to reduce gas and noise pollutants. One of the characteristics of ornamental plants can be distinguished based on the physical and living place of these ornamental plants, by identifying plants both physically and horticulturally, then the selection, management and placement of planting [1]. natural but many use chemicals.

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In a previous study by Andre Pratama with the titlethe effect of concentration and interval of watering animal blood serum on the growth of oil palm seedlings in pre-nursery[2]. As well as in a study by Fiya from Bhayangkara University, Greater Jakarta regarding Community Development of Plant Lovers in Bekasi City Through the Utilization of Egg Shells as Plant Serum [3]. However, in this case the difference with previous research is the application of the ingredients and their benefits. that is by mixing shallots with rice washing water because rice washing water can be used as organic fertilizer. According to research on organic fertilizers considered better because the applied nutrients are in a soluble liquid form which is easily absorbed by plants [4] This is because the nutrients present in wastewater are generally found in dissolved form and, therefore, they are readily available for plant uptake [5]. Besides that, it can accelerate plant growth and can prevent rot and pests on plants.

The purpose of this study is to educate people who are new or have long been involved in plant-growing activities. The method used is qualitative. Its application is by mixing natural ingredients and then extracting them and giving them to plants by watering or spraying them so that they grow quickly.

2. Method

2.1 Time and Place of Research

This research was conducted over a period of 3 months with a time starting from December to February inone of the flower stalls in the Upper Dago area.

2.2. Tools and materials

The tools used in this research process are 1000 ml measuring cup, medium size blender, and sieve. The ingredients prepared are 4 shallots and 2 liters of rice washing water. The 4 cloves of shallots are then mashed using a blender and then put into a measuring cup and then mixed with the rice washing water and filtered into the container. With the following dosage:

Table 1. Tools and Materials Table

NO	INGREDIENT	DOSE
1	Red Bottom	4 grains
2	Rice Water	2 Liter
NO	TOOL	UNIT
1	Measuring Cup	1000ml
2	Medium size blender	1 piece
3	Filter	1 piece

After all the ingredients have been collected, the next step is to peel the onion and then wash it with water until it is clean. After that, drain it until it is dry and then prepare a blender and put the dried onion into the blender until smooth. After that, the results from the blender that have been finely filtered through a sieve and take the extract from under the red. After that, prepare 2 liters of rice water and enter the onion extract into the water. Then the water

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that has been added by the red onion is stirred until evenly mixed. And the serum is ready to be packaged and used.

3. Results and Discussion

Plant Fertilizer Serum made from natural ingredients, has many benefits for the growth and fertility of various types of plants. A study of grafting sweet orange plants using onion extract in Kurulu District, Kab. Jayawijaya made a real impact. Shallot extract contains vitamin B1 (Thiamin) for shoot growth and contains Plant Regulatory Substances (ZPTz) Auxin and Rhizokaline which can stimulate root growth in plants. Auxin and vitamin B1 (thiamin) contained in onion extract are able to stimulate root and shoot growth [6]. Thiamin with Allicin will form allithiamin bonds which are easily absorbed by plant cells forming a physiological effect on shoot and leaf growth. It can be proven that, administration of onion extract with a concentration of 100% resulted in the highest wet and dry weights of shoots on Jatropha stem cuttings. when compared with the treatment of red onion extract with concentrations of 0%, 40%, 60%, and 80%. In addition, according to Muswita [7], red onion extract contains growth regulators that have a similar role to Indole Acetic Acid (IAA). Indole acetic acid (IAA) is the most active auxin for various plants and plays an important role in promoting optimal growth [8-10].

3.1. Research Stage

The stages of this research were carried out to determine the process of data processing. For more details, it will be found in the chart below:

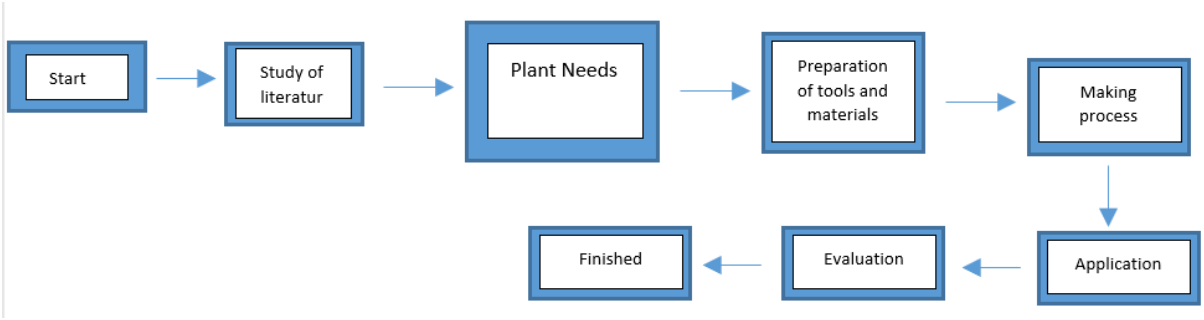

Figure 1. Research Activity Flowchart

3.2. Analysis of plant growth forecast

In a 3-month stage from December 1 to February 30 (90H) it will compare plants that use serum and plants that do not use serum. The results of this experiment are as follows:

Table 2. Growth In Plants (Plant 1 Using Serum)

Shooting Time	Leaves Appear
26 Days	30 Days 1 Leaf
	54 Days 2 Leaves
	70 Days 3 Leaves
	86 Days 4 Leaves

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Table 3. Growth in Plants (Plant no serum)

Shooting Time	Leaves Appear
42 Days	58 Days 1 Leaf
	84 ays 2 leaves

Figure 2. Hasil Pertumbuhan Tanaman Selama 3 Bulan

4. Conclusion

The results of this serum research show that the planned product has a large enough potential to be widely produced. Moreover, this serum has been tested a lot, strengthening previous studies that proved the benefits of onion extract and rice water can have a positive effect on plant growth. This product can be a breakthrough in a business field. And the comparison of the results of this study, the plants from the cutting process to growing that used serum without using serum the comparison was 50%, namely those that used could grow 4 leaves and those that did not use serum were 2 leaves.

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