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Survival Rate of Kawayantinik (Bambusablumeana) on the Different Levels of Alpha Naphthalene Acitic Acid (ANAA)

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ABSTRACT

This study was conducted to determine the survival rate of KawayanTinik (Bambusablumeana) as treated with different levels of ANAA. Specifically, this study aimed to answer the following: (1) to determine the survival rate of KawayanTinik (Bambusablumeana) as treated with Alpha Napthalene Acetic Acid (ANAA); (2) to determine what practices of bamboo can speedily produce shoots: a. open Growth Chamber and b. Closed Growth Chamber; and (3)to know the mortality rate of KawayanTinik (Bambusablumeana).Because of environmental and health caused by ANAA and cultured in open and closed chamber, nowadays the researcher who tried to make use. Based on the following findings, conclusion were made: (1) In comparing the growth on the different treatment using ANAA are no significant based on the statistical analysis; (2) From both open and closed chamber, the best to cultured is the open chamber where identify the greater number of survival; and, (3) To promote the bamboo as carbon sequestration. Based on the result of this study, the researchers to wit: **Guilnor O. Abria, RonieO.Abria, Jr., Karl Ver D. Aguilando, Jacquelyn A. Andales, John Renan B. Atencio, Rommel L. Atencio, Angelica V. Cardenas, Cyrel A. Centro, Josephine C. Corona, Anthony Ivan C. Correche, Ronalyn C. Dulay, GracianMarlo A. Dela Cruz, Oscar C. Espiña, Anjo F. Fiestas, Sonny Boy E. Francisco, JoevanniM. Galero, Paul Harris T. Galero and Myrah M. Galupo**would like to recommend that:A similar study be conducted with varying level of bio-organic fertilizer. It is also recommended to study on other types of bamboo under the field experiment, to prolong the period of observation. To study the different uses of bamboo. Additionally, we should give option to the Agro forestry System to used Kawayantinik (Bambusablumeana) in conservation of soil and water. Lastly, study the total volume of carbon dioxide in bamboo.

Keywords: Bambusablumeana, Alpha Naphthalene Acitic Acid (ANAA), survival rate

1. INTRODUCTION

The fifth assessment report of International Panel Climate change (IPCC) reported that the global surface had risen by 0.89°Cover the period of 1951-2012 and about 0.72°Coverthe period of 1951-2012. The report has predicted that in the reference to the period of 1986-2005, the global surface temperature changed by the end of this century is likely to be the range of 1.5°C to 4.5°C and in the range 0.3°C to 0.7°C for the period of 2016-2035. This is expected to cause further warming and induce many changes in the global climate systems during the 20thcentury. The continuous global warming of our earth can be the cause of the extinction of those species that serve as carbon sequestration.

Those greenhouse gasses that can cause to global warming will continuous to increase as the earth gradually warmer and warmer. One of this greenhouse gasses is the Carbon Dioxide (CO2). This Carbon Dioxide (CO2) is one of the components of plant to make their food called photosynthesis. Furthermore, our trees are not capable in absorbing all of the Carbon Dioxide (Co2).

However, the most recent report from the International Union of Forest Research Organization paints a rather gloomy picture about the future of the world forest in a changed climate, as it suggest that in a warmer world, the current carbon regulating services of forest as carbon sinks may be entirely lost as land ecosystems could turn into a net source of carbon dioxide later in the century (Seppäla et al, 2009).

In agricultural sector, this global warming is a hindrance for their continuous production of crops and etc. Our farmers are looking forward to make their crops in a good quality. Unfortunately, they are losing because of this high risk problem which we are encountered today.

Our government agency, especially the DENR is looking forward to solve this problem. One of these their program is the Expanded National Greening Program (ENGP) under the Executive Order 193 which aims to lessen the global warming and to promote reforestation of the denuded land. Under this program is the bamboo production. According to the authority, bamboo can absorb a 1308s of carbon dioxide unlike trees which can absorb only 1008 of carbon dioxide.

In connection with this, bamboo is important also in agro forestry and forest plant managed and used by the rural Communities in several countries of the Asia-Pacific region for generating diverse economic and socio-environmental needs. Mean carbon storage and sequestration rate in wood and bamboos range from 30-121 Mg $ha^{-1}$and 6-13 Mg ha^{-1} yr^{-1}, respectively. Bamboo has vigorous growth, with completion of the growth completion of the growth cycle between 120 and 160 days. Because of its rapid biomass accumulation and effective fixation of CO2 it has a high carbon sequestration capacity. Over and above the high biomass carbon storage, bamboo also has a high net primary productivity even with regular selective harvesting, thus making it a standing carbon stock and a living ecosystem that continues to grow. Thus, there is an urgent need to recognized ecosystem services that bamboo provides for well-being of rural communities and nature conservancy. Present syntheses suggest that bamboo offers tremendous opportunity for carbon farming and carbon trading.

Therefore, the bamboo has a big rule in combating the change in earth. This study is conducted to enhance the production of bamboo, so that, the bamboo production can produce more planting materials.

2. Objectives of the Study

This study was conducted to determine the survival rate of KawayanTinik (Bambusablumeana)as treated with different levels of ANAA.

Specifically, this study aimed to answer the following:

1. to determine the survival rate of KawayanTinik(Bambusablumeana) as treated with Alpha Napthalene Acetic Acid (ANAA);
2. to determine what practices of bamboo can speedily produce shoots:

A. open Growth Chamber
B. Closed Growth Chamber;

3. to know the mortality rate of KawayanTinik (Bambusablumeana).

3. Methodology

This study was conducted in Agro forestry Site, College of Agriculture, Fisheries, and Natural Resources, University of Eastern Philippines. The duration of this study is from December 01, 2017 to January 31, 2018.

Experimental Design and Treatment

A total of two hundred (200) pieces of bamboo propagules is divided into two groups: 100 pieces of bamboo propagules both open and closed growth chamber were used in this study. In every one hundred (100) pieces of bamboo propagules are distributed at the Complete Randomized Design (CRD) with four (4) treatments and twenty five (25) replicants, consisting of twenty five (25) pieces of bamboo propagules each treatment. In every treatment, there is a different levels of Alpha Naphthalene Acetic Acid (ANAA) except in Treatment one (1) or controlled treatment.

Nurse Site Preparation

The nursery is where seedling are raised and given care and maintenance. In this study, the researchers prepared a nursery of open and closed growth chamber with the size or meter width and 4 meters long, respectively. The nursery site has a shade to prevent excessive evaporation of water.

Growth Chamber Construction

Digging a soil to make a hole for perpendicular shape with the size of 4 meters long and 1 meter wide and put a fence to prevent erosion.

Using the bamboo, make a rectangular frame with a length of four (4) meters and one (1) meter wide. On midway of each of the one (1) meter, a one (1) meter piece of bamboo should be tied up with nylon string.

Soil Medium Preparation

The soil medium has a mixture of topsoil, chicken dung and rice hull. The soil medium were distributed equally to the different treatment both open and closed growth chamber.

Bamboo Propagule Production

The bamboo propagules prepared in the polyethylene bag with the s1ze of 4 inches width and 8 inches long. The planting material has an age of 4 to 5 years. In every treatment was soaked about 30 minutes, respectively, before transferring to the potted bag. The water has the mixture of Alpha Naphthalene Acetic Acid (ANAA), growth promoter. In Treatment 1 or controlled has only water, in Treatment 2 is a mixture of water and 10 ml of ANAA, in Treatment 3 is a mixture of water and 20 ml of ANAA and in Treatment 4 is a mixture of water and 30 ml of ANAA. The seedlings were watered twice a day. The seedlings were transplanted after soaking within 30 minutes.

Care and Management

The plots received the same cultural management practices such as fertilization, watering, weeding except for their treatment. The transplanting Plants were protected with shade against heavy rain and extreme heat.

Observation and Data Gathering

Period of observation was done once a week, that 13 very Thursday, from 10:00 - 12:00 in the morning during the laboratory period.

Data Analysis

Data gathered was analyzed using the Analysis of Variance; Least Significant Difference (LSD) test was used to compare the significant treatments.

The statistical instrument which is used in identifying the significance of different levels of ANAA in KawayanTinik (Bambusablumeana) the F-test method.

4. Results and Discussion

Survival Rate

The survival rate of planting stock after 2 months of study duration, in open chamber, Treatment 1 (control) has 768 survival rate, Treatment 2 has 488, Treatment 3 has 305 and Treatment 4 has 24% survival rates and has a total of 468 survival rate. In closed chamber, Treatment 1 (control) has 608 survival rate, Treatment 2 has 528, Treatment 3 has40% and Treatment 4 has 28% survival rates and a total of 45% survival rate.

Table 1 Number of survival and Percentage of survival rate in open chamber

Treatments	Number of Survival	Survival Rate (Percentage)
T_1	19	76%
T_2	12	48%
T_3	9	36%
T_4	6	24%
Total	46	46%

Table 2 Number of survival and Percentage of survival rate in closed chamber

Treatments	Number of Survival	Survival Rate (Percentage)
T_1	15	60%
T_2	13	52%
T_3	10	40%
T_4	7	28%
Total	45	45%

Number of Days Elapsed from the Date of Planting to Emergence of First Shoot

After transplanting the KawayanTinik (Bambusablumeana), there were no changes in the growth of plant.Two week after transplanting, some planting stocks produces shoots. In open chamber, T_1 was the first to produce shoot, same also to the closed growth chamber.

Three weeks after transplanting there were many young shoot arose in treatment 1 both open and closed growth chamber. At the Same time, treatment 2 also started to produce shoot both in open and close chamber.

In the other remaining weeks, shoots from different treatment were becoming vigorous because resistant to adverse environment condition. But due to extreme heat some died because of the lack of water.

Statistical Result

Since the t-computed value of 0.070 is greater than t-tabular value of 1.943 at 0.05 level of significance with 6degrees of freedom, the null hypothesis is accepted. This means that no significant differences between the survival of KawayanTinik (bambusablumeana) treated with the different level of ANAA.

5. Conclusions

Because of environmental and health caused by ANAA and cultured in open and closed chamber, nowadays the researcher who tried to make use. Based on the following conclusion were made.

- In comparing the growth on the different treatment using ANAA are no significant based on the statistical analysis.
- From both open and closed chamber, the best to cultured is the open chamber where identify the greater number of survival.
- To promote the bamboo as carbon sequestration.

6. Recommendations

Based on the result of this study, the researchers would like to recommend that:

A similar study beconducted with varying level of bio-organic fertilizer. It is also recommend to study on other types of bamboo under the field experiment, to prolong the period of observation. To study the different uses of bambo0. Additionally, we should give option to the Agroforestry System to used Kawayantinik (Bambusablumeana) in conservation of soil and water. Lastly, study the total volume of carbon dioxide in bamboo.

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