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THE INFLUENCE OF THE MEDIA AND THE CONCENTRATION OF AUXIN TOWARDS GROWTH CUTTINGS OF PEPPER (*PIPPER NIGRUM*LINNAEUS)

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ABSTRACT

This research aimed to analyse the right concentration of auxin, with composition of top soil planting media, cow manure and rice husk combined to the growth of pippernigrum. Pepper growers in the Laulara only use media land without adding manure (If j using the size without obvious) or ZPT (a regulator of plant substances) in the process of breeding that resulted in the growth of the plant is less good because even though the leaves are already quite a lot but haven't grown roots perfect (weak rooting), so when the opportunity to grow up in is very low. The methods used in this study was a Randomized Design Group (RDG),with three replicates.The treatmentarranged in factorial. The treatments tested consists of two factors, namelythe planting medium (M) consists of: Top Soil of Cow Manure, rice husk that are mixed with ratio 1:1: l.Part 2 concentration Factors. Auxin i.e. 12 gr/l, 24 gr/l 36 gr/l and 48 gr/l.The experiment consists of 20 combinations and each treatment was repeated three times so that the required 60 polybag/plants experiment. Observation of variable growth cuttings of pepper that is the length of the shoots, leaves, vast amounts of leaf, root length, number of roots and root weight.The collected data were analyzed with the analysis variant according to the experimental design was used. Based on the result of observation and data processing, it shows that the treatment factors of the planting media are significantly influential where the average value of control is lower for shoot length, root number, and root weight compared to the combination of top soil planting media, fertilizer rice husk cow cage with auxin concentration 36 gr/ l (M3R3). With the average value of each observation variable as follows long pepper cut buds for the age of 12 weeks after planting, the average number of leaves at 12 weeks after planting is 10,33 leaves compared to 5,00 leaves (M3R0). Leaf area at 12 weeks after planting is M3R3 combination of 60,03 cm compared to M3R0 combination13,67 cm. the longest number of roots in the M3R3 combination is 29,53 cm compared to the M3R0 combination of 14,63 cm. while the average number of roots in the M3R3 combination is 7,67 pieces compared to M3R0 which is 3,33 pieces. The while for root weigth there is a combination 0f M3R3 which is 6,42 gr compared to M3R0 combination of 3,97 gr. This happens because of the planting media which is a mixture of top soil, cow manure, rice husk which contains macro nutrients, especially higt organic C and NPC and micro nutrients added with rice husk which functions as water regulator (Aerase)so that it helps the growth process on the stem of the leaves and root cutting of pepper.

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INTRODUCTION

The utilization of naturalresources in East Timor would be expected on a wide range of choices. When these resources are utilized to produce export products, then the choice will fall on a product that has a high comparative advantage and products which require a minimum of domestic resources but produce foreign exchange maximum. One of the industrial plants that have a high comparative advantage is the Pepper (*Pippernigrum* Linnaeus) is one of the Timor-Leste Prime export commodities, obtained from the fruit of the pepper plants. During this time the CCT – NCBA has exported 20

tons to USA from 50 ha land area scattered in Municipio of Aileu, Liquica and Manufahi, Ermrea, though he was not a native of East Timor, its role in the national economy is very large.But in the development of komuditi pepper that became obstacles for CCT – NCBA as developers is the lack of quality seeds as well as less a lot because the success rate in breeding activities are still very far from the aspect of the right techniques good in terms of media as well as aphrodisiac plant roots.Increase the prospects that good on pepper plants so production need to be developed with the efforts of good cultivation.This allows the pepper farmers to increase income and ultimately supports the foreign exchange earnings of the country.This fact happened farmers do with simple pepper cultivation, such as that done by farmers pepper at SucoTalitu, PostoAdministrativoMunicipioAileu, Laulara.Pepper growers in the Laulara only use media land without adding manure (If j using the size without obvious.) or ZPT (a regulator of plant substances) in the process of breeding that resulted in the growth of the plant is less good because even though the leaves are already quite a lot but haven't grown roots perfect (weak rooting), so when the opportunity to grow up in is very low(Anonymous 2018).

The nursery is very necessary as a way to provide material for planting in large quantities.As it known that pepper plants can be planted directly in vegetative planting material is provided in the form of rods plans 7-9.This is an obstacle in improving crop production because of the planting material is being limited. Another case when the pepper plants reproduced in the form of seedlings with vegetative stems with 2-3 sections only. These become opportunities for availability of planting materials quickly so as to support increased production.The level of availability of healthy seeds in large quantities is the key to the success of the production of pepper. Because it needs to be done to support the breeding efforts of building healthy roots.The trick is to use media that is able to provide nutrient elements that support the development of roots (soil structure acusticus).The planting medium with such conditions can be created by adding fertilizer organic (cow manure, rice husks) as well as concrete lengkah to take advantage of the available organic waste. The use of mixed media manure rice husk can promote growth and crop yield(Setiyono 2004).This is because the first manure can give material organic, nutrient elements, improve the physical properties of the soil and prevent the loss of water in the soil (Nurdiansyah, 2007).The second husk was instrumental in the improvement of soil structure (better drainage system), bind water is not easily rotted, the source of K and not easily solidified (editor of PS, 2007) in addition the granting of Auxin as the substance grows (ZPT) that can stimulate the growth of the roots can be do. Much of the evidence States that the Auxin effect on the growth of the stem and root formation (Ardana 2009).

RESEARCH METHODS

This experiment was carried out at the Center-CCT NCBA nursery located in AldeiaMalinamuk, Suco Comoro, PostuAdministrativu Dom Aleixo, MunicipioDili.Based on Data Collection, the location of the GeoPointOna is located at latitude: 8°33'53"S.Longitude: E 125°31' 50". Height ± 82 m above sea level (a.s.l.) and accuracy of 3 m. Theland is low-lying land dry climate. The experiment was carried out on 25 April 2018 until 6 August 2018. The design used in this experiment is a random Design Group (RAK), with 3 times repeats inceptisol soil type (use of three different locations i.e. the land of Soil, TalituBaucau and of Malinamuk (the location of the CCT-NCBA) of the 3 types of the Foundation of Deuteronomy.The treatment arranged in factorial. The treatments tested consists of two factors, namely 1.The planting medium (M) consists of: Top Soil of Cow Manure, rice husk that are mixed with perbandingan1:1: 1.Part 2 concentration Factors. Auxin i.e. 12 gr/l, 24 gr/l 36 gr/l and 48 gr/l.The experiment consists of 20 combinations and each treatment was repeated three times so that the required 60 polybag/plants experiment. The materials used in the experiment was pepper cuttings. Auxin (Rootone F) brand Root Up retrieved from the store, the village of BoaventuraBidauAkadiru-Hun, Subdistrict Cristo Rei, District of Dili, cow dung manure by as much as retrieved from PerusahaanCCT Kennel-NCBA top soil, rice husk.The tools used include; plow, hoe, sickle, a plastic bucket, a flush (gembor), shovels, measuring cup, scales, analytical scales, ovens, meter, a ruler, a rope, a plastic pouch of Raphia, handcounter, stationery writing, soil pH, digital camera and GPS Observations were made to the variable that is the length of the shoots, leaves, vast amounts of leaf, root length, number of roots and root weight. Collected data were analyzed by analysis (ANOVA) variants in accordance with the experimental design was used.If there is a real interaction influence against the observed variable is then continued with a study of average difference test using test DMRT and BNT on levels 5% (Gomez and Gomez, 2007).

RESULTS AND DISCUSSION

Long Shoots Pepper Cuttings (cm): Best planting media for long shoots are planting media results mixed top soil, cow manure and rice husks.This is because the composition of the increasingly diverse media the better.The planting medium is basic and is the media treatment of the control. The addition of cow manure was able to give better results on long shoots because cow manure sanagt good to supply nutrient elements improve soil quality.Cow manure is a fertilizer organic materials that can provide organic, nutrient elements, improve the physical properties of the soil and restore the missing nutrient.Besides, it can also prevent the loss of water in the soil and the rate of incoming water infiltration in the soil (Nurdiansyah, 2007).The addition of husks on the planting medium also gives better results because the rice husk can improve system drainasedenganits easy to bind water, not easily rotted, and not easily solidified (editor of PS, 2007).This is in accordance with the Goddesses *atal.*, (2007) which stated that the pepper plants requires soil conditions that have good drainage and aerasin. The results of the analysis of the multiform prints (Anova) against the long shoots pepper cuttings (Attachments 4. f.) States that on the planting medium consisting of top soil, cow manure and chaff are combined with the concentration of Auxin which gives the best results is on the combination for each age observations are M1R3, M2R3 and M3R3.DMRT 5% test results as shown in table 1 below:

The concentration of Auxin is best on long shoots pepper cuttings is at 36 gr/l for all time interval of observations.This is in accordance with the Gardner *et al.,* (1991) which States that the concentration of Auxin response stems in a fairly wide range.Whereas the other Auxin concentration causes the length of lower buds showed that growth requires the concentration of Auxin pepper cuttings.TheAuxin concentration is not appropriate would not spur growth of seedling cuttings will

hinder even pepper. The concentration of Auxin for proper length of seedling cuttings pepper is 36 gr/l it is appropriate that the plant requires the concentration of Auxin which corresponds to pertumbuhanya.A concentration that does not fit would not spur growth even will inhibit growth.Artanti (2007) also stated that the Auxin is very influential towards the growth of the stem, however Ardana (2009) States that use ZPT will affect growth if proper use.

Table 1. The average length of the shoots pepper cuttings (cm), due to a combination of the planting Medium (M) and the concentration of Auxin (R) on several different Age

Treatment	3 Weeks	6 Weeks	9 Weeks	12 Weeks
M0R0	1.00a	4.57a	7.10b	10.77a
M0R1	1.33b	5.70b	6.40a	11.40ab
M0R2	1.40b	5.70b	7.47b	10.70a
M0R3	1.73c	7.63c	9.93d	11.83b
M0R4	1.43b	6.63d	8.23c	10.67a
M1R0	2.77d	4.60a	8.80c	12.03b
M1R1	3.67f	11.13gh	17.83f	26.60d
M1R2	3.87fg	11.67fgh	17.60f	27.50e
M1R3	4.03gh	13.23j	25.33k	30.20h
M1R4	3.83fg	11.50d	21.83i	28.83g
M2R0	3.27e	7.70i	9.97d	11.40ab
M2R1	4.17hi	10.83ef	20.73h	27.83e
M2R2	4.53jk	10.67i	17.17f	30.00h
M2R3	5.17l	15.40l	28.73l	32.87j
M2R4	3.97gh	10.37fg	26.07k	29.63gh
M3R0	3.23e	9.47h	15.73e	18.10c
M3R1	3.17e	13.87fgh	19.73g	31.87i
M3R2	4.67k	15.67j	22.63j	32.60ij
M3R3	5.63m	21.13k	25.83k	33.27j
M3R4	4.33ij	19.33e	20.07gh	33.07j

Remaks: a number that is followed by the same letter in every different column not reality test DMRT 5%.

The amount of Pepper Seedlings Leaf Cuttings (pieces): The results of the analysis of the multiform prints (Anova) against the number of plant leaf cuttings of pepper are presented in table 5.2 shows that treatment with the planting medium composition consisting of top soil, cow manure and rice husk that are combined with the concentration of Auxin 36 gr/l gives good results in every age of the plants. DMRT 5% test results as shown in the following Table 2:

Table 2.

Treatment	3 Weeks	6 Weeks	9 Weeks	12 Weeks
M0R0	2.00bc	2.67ab	4.00a	5.33a
M0R1	2.33c	2.33a	4.33a	6.33b
M0R2	1.33a	3.00bc	4.00a	6.33b
M0R3	2.33c	3.33c	5.00bc	6.67b
M0R4	1.67ab	2.67abc	5.00bc	6.67b
M1R0	3.33de	3.33c	4.33ab	5.00a
M1R1	3.33de	4.33d	5.67cde	7.67cd
M1R2	3.00d	4.67de	5.33cd	7.33c
M1R3	3.00d	5.67fg	6.33ef	8.33ef
M1R4	3.67e	4.33d	5.00bc	6.67b
M2R0	1.67ab	3.33c	4.33ab	5.33a
M2R1	2.33c	4.67de	5.33cd	7.33c
M2R2	3.33de	4.67de	5.67cde	7.67cd
M2R3	4.33f	6.00fg	7.00f	9.00g
M2R4	3.00d	4.67de	5.33cd	8.00de
M3R0	3.00d	4.33d	5.33cd	5.00a
M3R1	3.33de	4.33d	6.33ef	8.33ef
M3R2	3.33de	5.33ef	6.00de	8.67fg
M3R3	3.33de	6.33g	7.00f	10.33h
M3R4	3.33de	4.67de	6.00de	8.33ef

Remaks: a number that is followed by the same letter in every different column not reality test DMRT 5%.

Table 2 that, after the planting medium consisting of top soil, cow manure and rice husks (M3) combined with the concentration of Auxin 36 gr/l indicates that the interaction between both treatment occurs it can be indicated through the results of the analysis of fingerprints range (anova) stating that there is a very real influence on each interval age observed pepper cuttings i.e. 3, 6, 9 and 12 weeks after planting (WAP) against number of leaves. The function of the leaf is as indispensable fotosintat producing plants as a source of energy in the process of growth and development (Ardana 2009).The largest number of leaves produced shows plants experiencing good growth and development. The type of media, the concentration of auxin and the combination of both of which have no significant effect on the number of shoots. This is in accordance with Gardner *et al.,*(1991) which states that the number of books and sections equals the number of leaves, all three of which have the same origin in the fitomer. The cutting material used in this study has the same numberof books and sections. Nevertheless there are differences in the influence of types and media of auxin construction on the number of leaves, according to Gardner *et al.,*(1991) the number of leaves is also influenced by genetic and environmental factors. Leaf growth is more encouraged if available in large quantities in the growing media. The highest number of leaves is in top soil planting media, manure is rice husk with a concentration of auxin 36 gr / l. For top soil planting media, cow manure, and rice husk with auxin administration showed a good influence on the number of leaves. However, the concentration of auxin must be appropriate to obtain the optimal amount because in this study the highest number of leaves in the planting medium with auksin concentration of 36 gr / l whereas with the concentration of auxin 12 gr / l, 24 gr / l and 48 gr / l the number of leaves is more a little. This shows that it is not only seen from the concentration of auxin but from the sensitivity of the recipient network (plant protein) (Salisbury and Ross, 1995).

Width of leaf cuttings pepper (cm): The results of analysis of variance (Anova) on the leaf area of pepper cuttings presented in table 3 show that with the treatment of the composition of the planting media consisting of top soil, manure mixed with rice husk combined with auksinconcentration of 36 gr / l gave good results. at each age of the plant. 5% DMRT Test Results as in table 3 below:

Table 3. Width of leaf cuttings pepper (cm) from the result of a combination of planting media to the concentration of auxin

Media Tanam/Setek	KonsentrasiAuksin (ml/Setek)				
	0 gr/l (R0)	12 gr/l (R1)	24 gr/l (R2)	36 gr/l (R3)	48 gr/l (R4)
12 MST	----------gr----------				
Kontrol (M0)	13.67a	23.80a	26.28b	31.53b	26.97b
	A	A	B	B	B
Media Pupuk Kandang Sapi (M1)	21.73ab	40.97e	44.47f	49.30g	38.04d
	AB	B	C	C	B
Media SekamPadi (M2)	28.07b	37.17c	45.23f	60.03j	46.85f
	B	B	C	C	C
Pupuk Kandang Sapidan Sekam Padi (M3)	30.30b	44.47f	51.77h	55.38i	40.60e
	B	B	C	C	BC
BNT 5%			11.68		

Remaks :based on the effect of variance the interaction of the typeof planting media with auxinconsentration. Average followed by the same latter on the rows (a, b, c) and columnns (A, B, C) is not significantly based on the BNT test level of 5%.. M = palnting media, R = auxin concentration.

The highest number of leaves is in top soil planting media, manure is rice husk with a concentration of auxin 36 gr / l. For top soil planting media, cow manure, and rice husk with auxin administration showed a good influence on the number of leaves. However, the concentration of auxin must be appropriate to obtain the optimal amount because in this study the highest number of leaves in the planting medium with auksin concentration of 36 gr / l whereas with the concentration of auxin 12 gr / l, 24 gr / l and 48 gr / l the number of leaves is more a little. This shows that it is not only seen from the concentration of auxin but from the sensitivity of the recipient network (plant protein) (Salisbury and Ross, 1995). For top soil planting media, cow manure, and rice husk with auxin administration showed a good influence on the number of leaves. However, the concentration of auxin must be appropriate to obtain the optimal amount because in this study the highest number of leaves in the planting medium with auksin concentration of 36 gr / l whereas with the concentration of auxin 12 gr / l, 24 gr / l and 48 gr / l. Leaves in general are seen as the main producer of photosynthate organs, so leaf observation is needed to explain the growth process that occurs as in the formation of plants. Dauin's observations can be based on their function as recipients of light and photosynthetic devices. On this basis the leaf area is the main choice of parameters, because the rate of photosynthesis in plant unity is determined largely by lyuas leaves (Sitompul and Guritno, 1995).

Large leaf area affects the growth of other plant organs. Increasing leaf area is one form of plant growth which is the result of cell division and elongation activities that are affected by the availability of nutrients. Nitrogen is a nutrient that strongly supports vegetative growth in plants, especially leaves.Types of planting media, auxin concentration and a combination of both have no significant effect on leaf area. This is because leaves are part of plants whose growth structure is certain (to some extent dead) so that the type of media and auxin concentration have no significant effect on the growth of leaf area (Salisbury da Ross 1995). While the best planting media is top soil, cow manure and rice husk (M3). This happens because the planting media has a more complete composition. Cow manure adds organic material which has the effect of adding nutrients (especially N). while the husk improves the condition of the planting medium by providing more air and water space (aeration and drainage).The leaf area on pepper cuttings treated with auxin gave better leaf area than cuttings of pepper which were not treated with auxin (control).

Pepper Setek Root Growth: Pepper cuttings presented in Table 4 show that with the treatment of the composition of the planting medium consisting of top soil, manure and rice husk combined with 36 gr / l of auxin concentration gave good results at each age of the plant. From the table 4 in the bellow shows that with the treatment of the composition of the planting media without a mixture of control media combined with no auxin concentration (M0R0), in combination with the concentration of auxin 12 gr / l (M0R1), 24 gr / l (M0R2) did not interact with root length so that it does not have a significant effect, but in combination treatment with auxin concentration 36 gr / l (M0R3) interaction occurs so that the results of the analysis show a very significant effect, whereas at auxin concentration 48 gr / l (M0R4) does not interact so that it has no significant effect. BNT Test Results 5% as in table 3 below: BNT Test Results 5% as in table 4 below:

Table 4. The average growth of pepper cuttings (cm) due to the combination of planting media (M) and the concentration of auxin (R)

Treatment	Plant primary root growth		
	Root length (cm)	Number of root (buah)	BeratAkar (gr)
M0R0	8.23a	1.00a	1.00a
M0R1	9.50a	2.33b	2.17c
M0R2	8.93a	2.33b	2.17c
M0R3	13.63bcd	2.67b	3.42ef
M0R4	10.37abc	2.67b	2.67d
M1R0	9.90ab	2.67b	1.67b
M1R1	21.97fg	4.33cd	1.90bc
M1R2	17.30def	5.33de	1.90bc
M1R3	25.33gh	5.67de	3.08e
M1R4	14.60cde	6.00e	1.88bc
M2R0	11.83abc	2.33b	1.58b
M2R1	14.80cde	4.33cd	2.20c
M2R2	18.53ef	6.00e	2.25c
M2R3	26.37gh	5.67de	5.78j
M2R4	16.93de	5.67de	3.70fg
M3R0	14.63cde	3.33bc	3.97g
M3R1	14.87cde	6.33ef	4.05gh
M3R2	27.57h	6.00e	4.35h
M3R3	29.53h	7.67f	6.42k
M3R4	26.27gh	5.33de	4.98i

Remaks: number followed by same latter in eachcolumn different not significantly in the 5 % DMRT test.

For the treatment of planting media, top soil mixed with cow manure (M1) combined with auxin concentrations of 12 gr / l (M1R1) and 24 gr / l (M1R2) were not significantly affected while at 36 gr / l (M1R3) were very different it means that at the concentration of auxin 36 gr / l there is interaction. However, at a concentration of 48 gr / l (M1R4) there was no significant difference in the concentration of auxin 24 gr / l (M1R2), whereas for the treatment of planting media consisting of a mixture of top soil and rice husk (M2), combined with auxin concentration showed that without auxin (control) the average root length is very short compared to that combined with auxin concentration and from all auxin concentrations there is an auxinlength found in auxin concentration 36 gr / l (M2R3) followed by auksin concentration of 24 gr / l (M2R2) and after being analyzed with variance (Anova) showed that there was a very significant influence between without concentration and auxin concentration and very different results were shown on a combination of top soil and rice husk growing media combined with auksin concentration of 36 gr / l (M2R3) While for the treatment of planting media mixed between top soil, cow manure with husk on the results of the root length observation variable showed that the average longest root cuttings were found in a combination of planting media treatment (M3) with auksin concentration of 36 gr / l (M3R3).followed by a combination of M3R2 and M3R1 and the lowest average in the M3R0 combination, and then analyzed by variance (ANOVA) showed that the combination of M3R2 and M3R3 was not significantly different and only a real difference to the combination of M3R0 and M3R1.

The length of the root is the result of the extension of the cells behind the end meristem. Strong root growth is commonly needed for strength and growth (Gardner et al, 1991). Root length is a form of root growth. The overall shape of a mainly smaller root system is genetically controlled rather than a root system mechanism especially more genetically controlled than environmental mechanisms. But land affects too (Salisbury and Ross, 1995). The results of the analysis show that there are several combinations that are not real to the root length. This is

because the root is part of the plant whose growth and development stage is more in cell enlargement. In this cell enlargement, most of the water absorption occurs which can stretch the walls. The material for the new wall is synthesized so the wall is not thin. At the root of the wall widens only at the tip, then the root growth is more elongated. Supply of external hormones with low concentrations stimulates plant physiology, but the actual response shown depends on endogenous hormone levels (Salibury and Ross 1995). So root length is influenced by the dominant nature of root growth.

The best root length is in the treatment of top soil planting media, cow manure and rice husk with a concentration of auxin 36 gr / l. Because mixed media can increase plant growth and yield (Indradewa, 1995. Gardner *et al.,*(1991) also stated that better availability of water and nutrients can stimulate plants to carry out photosynthesis faster, produce more photosynthesis for roots. The media influences the root length because the media is where roots grow. Planting media with the composition of top soil, manure sap and rice husk can meet the needs of plant nutrients and provide sufficient space for good root growth. Could.

Giving auxin can provide a better root length because auxin is a growth regulator that stimulates root growth. Especially for soil media, giving auxin which is able to increase the number of roots is 36 gr / l. In the planting medium, the administration of auxin is able to increase the number of roots. This is in accordance with Tineksane (2005) which states that auxin plays a role in promoting root growth, because auxin is a hormone that plays a role in stimulating root growth. Auxin used is rootone F is the result of formulations of several root growth hormones so that its use is more effective in stimulating roots (Huik, 2004). One of the observed parameters in relation to root growth is the number of roots found on each cut of the pepper plant. So in this study also the number of roots in the observation variable. And from the results of bonding show that for the treatment of media only top soil combined with auxin concentration, namely that the highest number of roots is at the concentration of auxin 36 gr / l (M0R3) followed by combination with the concentration of auxin 48 gr / l (M0R4), 24 gr l (M0R2), 12 gr / l (M0R1), and after analysis with variance (Anova) showed that there was an interaction between those without auxin and those combined with auxin concentrations but not different between combinations for each different concentration of auxin. For the treatment of top soil planting media and cow manure (M1R1) which showed that the average number of roots was found in a combination of planting media with auksin concentration of 36 gr / l (M1R3) 5.67 while the least was in planting media without auxin (M1R0) and after being tested with statistics shows that there is a real difference between the combination of M1R0 with M1R1, M1R2, M1R3 and M1R4 and also there is a real effect between the combination of M1R1 against M1R4.

While for the treatment of planting media, namely the top soil mixture with rice husk the average number of roots is higest in the M2R2 cobination and is folled by combination of M2R3 and M2R4 whike the least is found in the M2R0 (Control) from the result of observation from the result of this observation data after being analyzed with variance (Anova) it was tated that there was significant difference in the control of the combination with the concentration with the concentration with the namely M@R1, M2R2, M2R3 and M2R4. Whereas the concentration of auxin occurs significantly at M2R2 to M2R1, M2R3 and M2R4. For the treatment of top soil planting media and cow manure (M1R1) which showed that the average number of roots was found in a combination of planting media with auksin concentration of 36 gr / l (M1R3) 5.67 while the least was in planting media without auxin (M1R0) and after being tested with statistics shows that there is a real difference between the combination of M1R0 with M1R1, M1R2, M1R3 and M1R4 and also there is a real effect between the combination of M1R1 against M1R4. As for the treatment of planting media (M2), which is a mixture of top soil with rice husk, the highest number of roots is found in a combination of M2R2 and followed by a combination of M2R3 and M2R4 while the least is in the control (M2R0). variety (Anova) stated that there was a significant difference in the control of the combination of media with the concentration of auxin namely M2R1, M2R2, M2R3 and M2R4.

Whereas between auxin concentration there was a significant difference in M2R2 against M2R1, M2R3 and M2R4. In the treatment of top soil planting media, cow manure and rice husk combined with auxin concentration from the observations stated that the highest number of roots was a combination of planting media with a concentration of auxin 36 gr / l (M3R3) followed by a combination of planting media with concentration auxin 12 gr / l (M3R1) and 24 gr / l (M3R2) and 48 gr / l (M3R4) and the least contained in the control (M3R0), based on these observational data after being analyzed with a variance (Anova) tool showing that interaction occurs, namely the real difference between the results of the combination of planting media to the concentration of auxin M3R0 with M3R1, M3R2 and M3R4. According to Gardner *et al.,*(1991) states that roots are the main vegetative organs that supply water, minerals and materials - materials that are important for plant growth and development. Strong root growth is needed for shoot growth. If the root is damaged due to a biological, physical or mechanical disturbance, shoot growth will be disrupted. Yanuartha (2007) states that roots function in suctioning water and liquids that are charged with salt.Other functions as suckers of nutrients for plants which are then circulated throughout the plant through wood tissue. In addition, it also functions as a reinforcement of plants so that growth is strong. This led to the need for observing the number of roots in this study. Kinds of planting media that have no effect on the number of roots. This is because the number of roots is determined by periklinal division. As stated by Salisbury and TRoss (1995), periklinal division followed by the growth of child cells causes a protrusion that is primordial root.

Based on the results of data analysis showed that the concentration of auxin had a significant effect at a concentration of 36 gr / l (table 5.). This is because auxin is a plant regulating agent that stimulates root growth. Although naturally auxin is produced by the plants themselves, the administration of synthetic auxinfrom outside can stimulate rootgrowth.Theinteraction of media types and auxin concentrations based on the results of the study shows that the effect is. This is because the planting media is a place to grow roots, so that the combination of both is significantly affected the number of roots. According to Wesito and Nuryani (2005) media in the form of a mixture of soil and organic materials provide two advantages, namely as a root growth medium and a provider of nutrients and water for root growth. The media in the press functions as a barrier to cutting during the root growth period, preserves moisture and facilitates air

penetration (Wuryaningsih, 1998). In addition, media with better availability of water and nutrients can stimulate plants to carry out photosynthesis more, such as increasing the number of roots (Gardner *et al*, 1991). Giving auxin increases the number of roots optimally the concentration of age. Rineksane (2005) states that the use of auxin (Rootone F) plays a role in increasing the number of roots. Marlin (2005) states that auxin plays a role in increasing the enzymes that play a role in making cell components so that as cell division begins to occur, auxin will stimulate the formation of cells quickly. Artanti (2007) states that auxin has several roles in supporting plant life including pushing primordial roots.

One indicator to find out the reaction between auxin concentration and the growth of root number and length is root weight parameter. Therefore, in this study the researchers also conducted observations on root weight in each treatment both the control and at the auxin concentration interval. And from the observations showed that the treatment of planting media only top soil (control) M0 combined with auxin concentration showed data where the average weight of pepper cuttings was high in the combination of M0R3 which was 3.42 gr and followed by a combination of M0R4 while M0R2 and M0R1 same average. And to find out the interaction of each combination of planting media on auxin concentration, a statistical analysis was carried out with variance (Anova) stated that between control (M0R0) with a combination of M0R1, M0R2, M0R3, and M0R4 it was significantly different, while M0R1 and M0R2 were not different real but significantly different from M0R3 and M0R4. For the treatment of top soil planting media with cow manure showed that the highest rooted value occurred in combination with auxin 36 gr / l (M1R3) and followed by a combination of M1R1, M1R2 and M1R4 and to determine the interaction of auxin concentration to root weight then tested statistics with variance (ANOVA) and the results state that with the same media treatment after being combined with auxin concentration it shows a significant influence between the M1R3 combination against M1R0, M1R1, M1R2 and M1R4.
The treatment of top soil planting media mixed with rice husk (M2) combined with auxin concentration based on the results of observations, the data showed that the highest weight of pepper cuttings was found in the M2R3 combination results with auksin concentration of 36 gr / l which was 5.78 gr root weight and followed by the combination results of M2R4, M2R2, M2R1 and the lowest on the control (M2R0), to be able to determine the interaction between media treatment and auxin concentration on the weight of pepper cuttings then this data was analyzed with variance (ANOVA) and from the analysis results presented in the table 4 shows that there is interaction so that there is a significant difference between the combination of planting media treatment with auxin concentration on M2R0 combination results on the combination of M2R1, M2R2, M2R3 and M2R4 while M2R1 and M2R2, but significantly different from M2R3 and M2R4 and M2R3 significantly different from M2R4. For the treatment of top soil planting media, cow manure and rice husk (M3) combined with the concentration of auxin respectively showed that the average value of root weight occurred in the combination results of M3R3 which was 6.42 gr then followed by a combination of M3R4, M3R2, M3R1 and the lowest in the control section. Considering this data to find out the interaction between the treatment of the media and the concentration of auxin, it is followed by statistical analysis using variance (ANOVA) presented in table 5. shows that there is a real difference between the combination of M3R0 against M3R1, M3R2, M3R3 and M3R4. Whereas the combination results with auxin namely M3R1 and M3R2 were not significantly different but M3R2 against M3R3 and M3R4 were significantly different.

Conclusion

Based on the results of the research and discussion it can be concluded that:

- Planting media which contains macro nutrients, especially organic C, and high NPK and micro (K, Cl) with good aeration can increase the growth of pepper cuttings both on shoot length, leaf number, leaf area, root length, root number and root weight.
- With the combination of planting media to the right concentration of auxin, which is 36 gr / l, it can provide optimum growth on the pepper cuttings with maximum results, especially for shoot length, growth and development of leaves and root growth.
- There was a real interaction with the growth of pepper cuttings in the treatment of planting media with auxinconcentration, especially in the composition of top soil planting media, cow manure and rice husk combined with auxin concentration of 36 gr / l.
- Thus the results of this study in accordance with the hypothesis can answer the problems that form the basis of this study.

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