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GROWTH OF MELON (CUCUMIS MELO L.) VARIETIES ON DIFFERENT PLANT MEDIA COMPOSITIONS IN CONDITIONS OF HYDROPONIC DRIP IRRIGATION

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ABSTRACT
The low level of land productivity, uncertain climate conditions and the high intensity of disease attacks in Indonesia result in less than optimal melon production. Hydroponic cultivation techniques are carried out for controlled maintenance to obtain the desired production. This experiment was conducted to determine the types of melon varieties combined with different planting media compositions to increase the growth and yield of melons using a hydroponic drip irrigation system. The experiment was arranged in a completely randomized design (CRD) consisting of two factors. The first factor is variety (V) which consists of 3 levels, namely: V1 = Apollo, V2 = Autumn Waltz No. 2, and V3 = Alisha F1. The second factor was the composition of the planting medium (M), which consisted of 3 levels: M1 = 25% husk charcoal: 75% cocopeat, M2 = 75% husk charcoal: 25% cocopeat, and M3 = 50% husk charcoal: 50% cocopeat. The results of this experiment found that the combination of the Alisha variety and the planting medium of 75% cocopeat + 25% husk charcoal increased growth and yield with a fruit weight of 1797.33 g and a fruit diameter of 145.73 mm. The Alisha variety showed an average thickness of 44.29 mm flesh with lower water content and an average higher sugar content than other melon varieties, namely 15.78 brix.

KEY WORDS
Cucumis melo L., cocopeat, husk charcoal, hydroponics, drip irrigation.

The melon plant (Cucumis melo L) is a vine and has a type called pepo, namely the part eaten is the flesh or mesocraps which are thick, watery, have a soft texture, taste sweet and fresh, have a fragrant aroma, and the flesh has a white to greenish color. Melon is an annual plant that is in great demand and widely cultivated in Indonesia because it has a high economic value (Azzamy, 2016).

In Indonesia, national melon production in 2018 reached 118,708 tons, followed by 2019 reaching 122,105 tons. Meanwhile, melon production in Central Kalimantan in 2017 was 23.98 tons, and in 2018 melon production increased to 43.50 tons (BPS, 2018). Especially in the City of Palangka Raya, melon production in 2017 reached 6.89 tons and increased in 2018 to 8.95 tons, but decreased in 2019 reaching 7.24 tons or 19% (BPS Kalimantan Tengah, 2020).

In an effort to increase the production of melon plants can be pursued in 2 ways, namely by way of extensification and intensification of agriculture. Agricultural extensification is a way to increase yields by expanding agricultural land, while agricultural intensification is a way to increase agricultural yields by making the best use of land such as using appropriate technology. One way that can be used in the application of agricultural intensification is by utilizing hydroponic cultivation technology (Bachtiar *et al.,* 2017; Romalasari & Sobari, 2019; Astuti et al., 2020; Meidiyustiani et al., 2021; Rahman et al., 2021; Mahmudati & Hakim, 2022).

Hydroponic systems in the use of media are divided into two, namely substrate

hydroponics (using media) and non-substrate (without using media). Hydroponic plant media can be divided into two, namely organic media and inorganic media. Organic media is plant media in which most of the components come from living organisms such as plant parts, for example wood chips, sawdust, husk charcoal, wood charcoal, coconut fiber powder, fern stalks and palm fiber. Meanwhile, inorganic media are media that come from inanimate objects such as stones, gravel, sand, pumice, and tile shards (Arisandi, 2013). The addition of husk charcoal in the planting medium is one way to reduce the use of soil as a planting medium. The porous and sterile nature of husk charcoal is one of the efforts to increase crop production. Meanwhile, cocopeat is a planting medium made from coconut coir powder, which has high water absorption and is environmentally friendly (Sani, 2015).

The advantages of drip irrigation according to Sapei (2006); Setyaningrum, (2014); Nora et al., (2020); Suwati et al., (2022), namely: a). Increasing the use-value of water, in general, less water is used in drip irrigation compared to other methods; b). Increases plant growth and yields, high soil moisture fluctuations can be avoided by this drip irrigation and soil moisture is maintained at the optimal level for plant growth; c). Save labor, drip irrigation system can be easily operated automatically

Golden melon cultivation has greater market interest with a selling price that is up to twice the price of green melon (Agroindo, 2015). Superior varieties of golden melon that can be cultivated in the lowlands, namely: a). Apollo varieties, can adapt well to the lowlands with an altitude of 1 – 300 m above sea level, harvest age 52 – 60 days after planting, have a sugar content of 14% brix with yields production ± 36 ton.ha-1; b). Autumn waltz variety No. 2, can adapt well to low to moderate plains with an altitude of 1 - 600 m asl, harvest age 53 - 59 days after planting, has a sugar content of 14% brix with a production yield of ± 35 tons.ha^{-1}; and c). Alisha f1 variety, can adapt well to the lowlands with an altitude of 10 – 400 m asl, harvest age 65 – 70 days after planting, has a sugar content of 12 – 14% brix, with a production yield of 40 tons.ha^{-1} (Cahyono, 2007).

MATERIAL AND METHODS OF RESEARCH

This research was carried out in June 2021 – August 2021, taking place at the Green house of the Experimental Garden Installation, Department of Agricultural Cultivation, Faculty of Agriculture, University of Palangka Raya.

The materials used in this study were melon seeds (Apollo, Autumn Waltz No. 2, and Alisha f1 varieties) (variety descriptions attached), polybags measuring 35 x 40 cm and polybags for seedlings measuring 12 x 17 cm, rice husk charcoal, cocopeat, coat, and nutrition AB Mix.

The tools used are TDS (Total Dissolved Solids), refractometer, UV plastic 170 micron, insectnet 40 mesh, pH meter, ruler, fruit scale, dripper stick, hand sprayer, meter, jerry can 5 L, scales, caliper, measuring cup, 50 L bucket, raffia rope, 7 mm HDPE hose, 1/2 inch PVC faucet stop, 3 cm drip pipe, tissue, wood, newspapers, stationery, and camera.

This experiment used a factorial completely randomized design (CRD) consisting of 2 treatment factors with 3 (three) replications.

Treatment factor I consisted of 3 levels of planting media composition namely: M1 = 25% Chaff charcoal: 75% *Cocopeat* M2 = 75% Chaff charcoal: 25% *Cocopeat* M3 = 50% Chaff charcoal: 50% *Cocopeat.*

Treatment factor II consisted of 3 levels of melon varieties, namely: V1 = Apollo variety; V2 = Autumn Waltz Variety No. 2; V3 = Alisha Variety f1.

RESULTS AND DISCUSSION

The results of the analysis of the length variance of melon plants showed that the treatment of the composition of the planting medium for melon varieties using hydroponic drip irrigation showed no significant interaction effect at all ages of observation, but there was a significant effect on the single treatment of growing media at the age of 21 and 28 HST, while it had a very significant effect, significantly in the single treatment of melon plant

varieties at the age of 7 HST. It is showed that the administration of biological agents had a very significant effect on the percentage of growth inhibition of JAP.

Table 1 – The average length of melon plants aged 7, 14, 21 and 28 HST in hydroponic drip irrigation from the treatment of different planting media compositions to melon varieties (cm)

Age (HST)	variety (V)	Media (M)			Average
		M1	M2	M3	
7	V1 (Apollo)	11,77	12,63	8,53	10,98 b
	V2 (Authumn)	7,80	6,40	5,63	6,61 a
	V3 (Alisha)	10,00	9,50	10,50	10,00 b
	Average	9,86	9,51	8,22	
LSD 5%:			1,72		
14	V1 (Apollo)	41,00	39,17	28,50	36,22
	V2 (Authumn)	34,33	24,00	31,00	29,78
	V3 (Alisha)	31,00	31,67	34,33	32,33
	Average	35,44	31,61	31,28	
21	V1 (Apollo)	108,67	88,33	101,00	99,33
	V2 (Authumn)	111,67	89,33	98,00	99,67
	V3 (Alisha)	105,00	95,67	114,33	105,00
	Average	108,44 b	91,11 a	104,44 ab	
LSD5 %:			14,77		
28	V1 (Apollo)	187,00	133,67	187,33	169,33
	V2 (Authumn)	160,33	171,33	180,67	170,78
	V3 (Alisha)	190,33	163,33	198,33	184,00
	Average	179,22 ab	156,11 a	188,78 b	
LSD 5 %:			26,17		

Based on the results of the average length of the melon, the composition of the planting medium had a significant effect on the ages of 21 and 28 HST. At the age of 21 HST the best media composition for variable plant length was found in the media 75% cocopeat and 25% rice husk charcoal (M1) with an average value of 108.44 cm, and significantly different compared to the media combination treatment of 75% rice husk charcoal and 25% cocopeat (M2) with an average value of 91.11 cm, but not significantly different from the combination treatment of 50% rice husk charcoal and 50% cocopeat (M3) with an average value of 104.44 cm. Whereas at the age of 28 HST the best treatment combination for variable plant length was found in the media 50% husk charcoal and 50% cocopeat (M3) with an average value of 188.78 cm, and significantly different from the media composition 75% husk charcoal and 25% cocopeat (M2) with an average value of 156.11 cm, but not significantly different from the composition of the media 75% cocopeat and 25% husk charcoal (M1) with an average value of 179.22 cm.

The results of the average length of melon plants showed that the treatment of melon varieties had a very significant effect at the age of 7 HST, the best variety was the melon Apollo (V1) variety with an average value of 10.98 cm and significantly different from the Authumn variety (V2) with an average value - average 6.61, but not significantly different from the Alisha variety (V3) with an average of 10.00 cm.

Cocopeat planting media has a good level of aeration so it easily absorbs nutrients, water and oxygen, this is in accordance with research by Perwitasari, et al (2012) that hydroponic cultivation in addition to good planting media nutrition also needs.

Treatment plants are considered to be absorbed charcoal so that the air is optimal. Husks and nutrients can help create an ideal growing environment for plant growth and rooting, the nutrient absorption process can run in balance so that melon plants can grow well, while the husk charcoal helps keep the planting medium condition loose because it has

high porosity and light weight which causes increased high growth of melon plants.

According to Agoes (1994) in Syahputra, et al., (2014), the planting medium besides providing nutrients for plants is also a place for roots to attach. The type of media has a different effect on plants, so a mixture of several planting media materials must be able to produce the appropriate texture.

Plant growth is proportional to the availability of water, growth will be limited to water conditions that are too low or high, this is because if the water is too high, the oxygen concentration and the air conditioning of the growing media will be bad, whereas if the availability of water is too low, the plants will not only can absorb nutrients can also cause stress because it cannot carry out photosynthesis properly.

Water is needed by plants to form carbohydrates, maintain protoplasmic water hydration (turgor) and a tool for translocation of nutrients. Lack of water can cause reduced cell division and cell elongation, so that plant growth is disrupted.

The results of the analysis of variance in the number of leaves of melon plants show that the treatment of the composition of the planting media on melon varieties using hydroponic drip irrigation showed no significant interaction effect at all ages of observation.

Table 2 – Average number of leaves of melon plants aged 7, 14, 21 and 28 HST in hydroponics drip irrigation from the treatment of different planting media compositions on melon varieties (strands)

Age (HST)	variety (V)	Media (M)			
		M1	M2	M3	Rata-rata
7	V1 (Apollo)	4,67	4,33	4,00	4,33
	V2 (Authumn)	4,00	4,00	3,67	3,89
	V3 (Alisha)	4,00	4,00	3,67	3,89
	Average	4,22	4,11	3,78	
14	V1 (Apollo)	9,33	8,33	7,67	8,44 b
	V2 (Authumn)	8,00	6,67	7,33	7,33 ab
	V3 (Alisha)	7,00	7,00	7,33	7,11 a
	Average	8,11	7,33	7,44	
LSD 5%:			1,29		
21	V1 (Apollo)	17,67	16,33	17,67	17,22
	V2 (Authumn)	16,67	14,67	16,67	16,00
	V3 (Alisha)	17,00	17,33	17,67	17,33
	Average	17,11	16,11	17,33	
28	V1 (Apollo)	26,33	23,67	24,67	24,89
	V2 (Authumn)	22,67	22,67	25,67	23,67
	V3 (Alisha)	25,67	25,67	25,67	25,67
	Average	24,89	24,00	25,33	

Based on the results of the average number of melon leaves, it shown that the best variety at 14 HST, namely the Apollo (V1) melon variety with an average of 8.44 strands, was significantly different when compared to the Alisha variety (V3) with an average of 7. 11 strands, but not significantly different in the Authumn variety (V2) with an average of 7.33 strands.

Differences in the genetic characteristics of the varieties used, where the Alisha variety (V3) has more leaves than the other varieties, so that the growth of the number of plant leaves is higher. The relationship between the number of leaves determines the yield, large and many leaves are able to absorb sunlight so that they can photosynthesize optimally, so that the availability of energy for development and growth is better.

Ashari (1995), states that there are two important factors that influence the growth of a plant, namely genetic factors and environmental factors. Genetic factors are related to the

inheritance of plant properties, while environmental factors are related to nutrition, water, light, temperature, and humidity. Each type of plant shows a different response to different environmental factors (Barker, 2007).

According to Pantilu et al, (2012), the number of leaves is the main determinant of growth speed. This situation can be seen in the leaves with a larger leaf area that also has a large growth. The morphology of wide and thin leaves is a sign of low light environmental conditions, where plants capture as much light as possible with the lowest reflected light.

The results of the analysis of the variety of stem diameters of the melon plants show that the treatment of the composition of the planting media on melon varieties using hydroponic drip irrigation showed no significant interaction effect at all ages of observation 5.

Table 3 – Mean stem diameter of melon plants aged 7, 14, 21 and 28 DAP in hydroponic drip irrigation from the treatment of different planting media compositions for melon varieties (mm)

Age (HST)	Varieties (V)	Media (M)			
		M1	M2	M3	Average
7	V1 (Apollo)	4,81	4,79	3,79	4,46
	V2 (Authumn)	4,23	3,70	3,90	3,94
	V3 (Alisha)	4,51	4,04	3,84	4,13
	Rata-rata	4,52	4,18	3,84	
14	V1 (Apollo)	6,50	5,43	5,90	5,94 a
	V2 (Authumn)	6,87	6,50	7,40	6,92 b
	V3 (Alisha)	6,20	6,23	5,87	6,10 ab
	Rata-rata	6,52	6,06	6,39	
LSD 5 %:			0,91		
21	V1 (Apollo)	7,87	6,40	6,97	7,08
	V2 (Authumn)	8,43	7,67	8,10	8,07
	V3 (Alisha)	6,73	7,60	7,27	7,20
	Rata-rata	7,68	7,22	7,44	
28	V1 (Apollo)	9,07	7,63	8,20	8,30 a
	V2 (Authumn)	9,47	9,33	10,20	9,67 b
	V3 (Alisha)	8,00	7,93	8,97	8,30 a
	Average	8,84	8,30	9,12	
LSD 5 %:			1,29		

Based on the average diameter of the stem of the melon, it shows that the best variety at 14 DAP is the Authumn melon variety (V2) with an average value of 6.92 mm and is significantly different when compared to the Apollo variety (V1) with an average value of 5.94. mm, and did not differ significantly in the Alisha variety (V3) with an average value of 6.10 mm, while at 28 HST the best variety was the Authumn melon (V2) with an average value of 9.76 mm and significantly different from the Alisha variety (V3) and the Apollo variety (V1) with an average value of 8.30 mm.

The best varietal treatment for the stem diameter variable was in the Authumn (V2) variety, this was the age of the first flowering indicating that the treatment of the composition of the planting media and varieties was not suspected due to the influence of genotypic expression in which all varieties had the ability to give different growth and yield, this is in accordance with the opinion of Syarif (2010), states that the use of different varieties produces different growth and yield. Differences in genetic traits between several varieties cause plants to have different responses to their environment. Each variety has different characteristics, which are caused by differences in genetic traits in each plant.

Table 4 – The average age of the first flowering of melon plants in hydroponic drip irrigation from the treatment of different planting media compositions of melon varieties (days)

r (V)	Media (M)			Average
	M1	M2	M 3	
V1 (Apollo)	11,67	12,33	11,67	11,89 b
V2 (Authumn)	11,00	10,67	10,67	10,78 a
V3 (Alisha)	12,33	12,33	12,33	12,33 b
Average	11,67	11,78	11,56	
LSD 5 %:		0,77		

The first flowering plant, the average age of an melon showed that the Alisha variety (V3) was treated with an average value of 12.33 days and was significantly different compared to Authumn (V2) with an average value of 10.78 days, but not significantly different from the Apollo variety (V1) with an average value of 11.89 days. The fast flowering period and the long flowering period are thought to be influenced by the genetic characteristics of the plants and the environment in which the plant varieties were tested. This is in the opinion of Jusniati (2013), that the slow flowering of plants is influenced by genetic traits and the environment.

According to Lakitan (1993), the environmental factors where plants grow that affect the flowering age of plants are temperature, light, and day length. Differences in day length and temperature received by plants will also provide different responses to the process of stimulating hormones in plant organs that play a role in forming flowers and inhibiting the work of other organs..

The results of the analysis of the variety of fruiting ages show that the treatment of the composition of the planting media and varieties has a very significant interaction with the variable of the age of fruiting.

Table 5 – The average age of fruiting melon plants in hydroponic drip irrigation from the treatment of different planting media compositions to melon varieties (days)

Varieties (V)	Media (M)			Average
	M1	M2	M3	
V1 (Apollo)	35,00 b	33,00 b	31,00 a	33
V2 (Authumn)	29,67 a	28,67 a	31,33 a	29,89
V3 (Alisha)	31,00 a	30,33 a	32,00 ab	31,11
Average	31,22	31,33	31,44	
LSD 5 %:		3,34		

The composition of the growing media and the fastest varieties on the fruiting age variable were found in 75% husk charcoal + 25% cocopeat and the Authumn variety (M2V2) with an average value of 28.67 days and the treatment was 75% cocopeat + 25% husk charcoal and the Apollo variety (M1V1) with an average fruiting age of 35.00, is the longest fruiting age treatment. However, the M2V2 treatment was not significantly different from the M1V2, M2V3, M1V3, M3V1, M3V3, and M3V2 treatments.

Plant growth and development can be influenced by external factors and internal factors. According to Buntoro (2014), external factors are factors that are caused from outside the plant, which can be in the form of environmental factors, such as light, temperature, and rainfall.

Internal factors or factors originating from within the plant can be in the form of physiological factors and plant genetics. The lack of adaptation of each variety to the local environment is a response to environmental pressures. Jumin (2005), added that high growth

and production in each variety is due to the adaptation of the environment that is suitable for the growth and development of these plants.

The results of the analysis of the variety of harvesting ages show that there is no interaction between the composition of the planting media and the varieties on the harvesting age variable; however, there is a significant effect on the single factor of the variety on the harvesting age variable.

Table 6 – The average age of harvesting melon plants in hydroponic drip irrigation from the treatment of different planting media compositions for melon varieties (day)

Varieties (V)	Media (M)			Rata-rata
	M1	M2	M3	
V1 (Apollo)	65,33	63,33	64,67	64,44 ab
V2 (Authumn)	57,00	57,33	57,67	57,33 a
V3 (Alisha)	72,67	72,00	72,33	72,33 b
Average	65,00	64,22	64,89	
LSD 5 %:		14,87		

Table 7 – Mean fruit weight of melon plants in hydroponic drip irrigation from the treatment of different planting media compositions for melon varieties (gram)

Varieties (V)	Media (M)			Average
	M1	M2	M3	
V1 (Apollo)	1198,00 a	1342,33 a	1554,00 ab	1364,78
V2 (Authumn)	1625,33 b	1013,33 a	1503,33a	1380,67
V3 (Alisha)	1797,33 b	1393,67 a	1687,00 b	1611,56
Average	1512,44	1249,78	1581,44	
LSD 5%:			541,96	

Based on the average harvesting age of the melon plants, it showed that the Alisha (V3) variety with an average value of 72.33 days was significantly different from the Authumn (V2) variety with an average value of 57.33 days and not significantly different from the Apollo variety (V1) with an average value of 64.44 days.

The Authumn variety (V2) shows a faster harvesting age than the Apollo variety (V1) and the Alisha variety (V3), this is presumably because the Authumn variety has different genetics from the Apollo and Alisha varieties.

In the opinion of Satyono (2000), that the age of harvest is influenced by several things, namely variety, climate, altitude and fertility of the planting medium. Pradana (2015), added that plant growth is influenced by 3 factors, namely environmental conditions (water, growing media, and climate), genetic factors and how to manage them.

Genetic factors will play a good role if environmental factors are in optimum conditions or if environmental factors are in optimum conditions, plant growth and yield will be largely determined by genetic factors. The character of harvesting age is also influenced by irrigation or the provision of nutrients to plants for photosynthesis which affects yields.

The results of the analysis of fruit weight variance show that the treatment of the composition of the planting medium and varieties has a significant interaction with the fruit weight variable.

Based on the results of the average fruit weight of the melon plants, there was a significant interaction. The best media composition for variable fruit weight is found in the media composition at 75% cocopeat + 25% husk charcoal and variety Alisha (M1V3) with an average fruit weight of 1797.33 grams and significantly different compared to the treatments M2V2, M2V1, M1V1, M2V3, and M3V2, but the M1V3 treatment was not significantly different from the treatments, M1V2, M3V3, and M3V1.

The increase in fruit weight of melon plants in the combination of 75% cocopeat + 25% rice husk charcoal and the alisaha variety (M1V3) showed that this combination of treatments was more optimal in absorbing nutrients given during vegetative growth, as indicated by the higher number of leaves of the Alisha variety.

This condition will have an impact on increasing photosynthetic activity which is higher with more photosynthetic or photosynthetic results that will be allocated to increase the fruit weight of melon plants. According to Latifah (2016), fruit weight is related to the accumulation of photosynthetic results and water content in plants. Plant weight gain is strongly influenced by plant height and number of leaves. According to Darmawan and Baharsjah (2010), plant growth can be defined as an increase in plant size followed by an increase in fruit weight.

In fruit plants, the supply of K greatly affects the size, color, taste, and skin of the fruit. While the P and K content is not optimal, the formation of fruit will be reduced. The P and K nutrients possessed by husk charcoal and cocopeat can fulfill plant growth and yield

According to Simanungkalit et al (2013), the availability of P and K nutrients is very much needed in the process of fruit formation. In fruit plants, the supply of K greatly affects the size, color, taste, and skin of the fruit. While the P and K content is not optimal, the formation of fruit will be reduced.

The results of the analysis of fruit diameter variance show that the treatment of planting media composition and variety has a significant interaction with the fruit diameter variable.

Table 8 – The average diameter of melon plants in hydroponic drip irrigation from the treatment of different planting media compositions for melon varieties melon (mm)

Varieties (V)	Media (M)			Average
	M1	M2	M3	
V1 (Apollo)	130,77 a	107,10 a	131,93 a	123,27
V2 (Authumn)	124,87 a	120,10 a	138,67 ab	127,88
V3 (Alisha)	145,73 b	131,87 a	143,13 b	140,24
Average	133,79	116,76	137,91	
LSD 5 %:		33,23		

Based on the results of the average diameter of the fruit of the melon plants, it shows that there is a real interaction. The best media composition for variable fruit diameter was found in the media composition at 70% cocopeat + 25% husk charcoal and the Alisha variety (M1V3) with an average fruit diameter of 145.73 mm and significantly different compared to the treatments M2V2, M1V1, M1V2, M2V3, M3V1 , and M2V1. However, the M1V3 treatment was not significantly different from the M3V2 and M3V3 treatments.

The increase in the leaf area of melon plants is directly related to the leaf area of the plant, so that photosynthesis increases higher and the translocation of photosynthetic products (photosynthate) to the fruit is also higher and fruit formation is also more optimal.

Supriyadi and Haryuni (2010), that the application of fertilizer (nutrition) will increase the number of fruit plants. Genetic factors are factors that influence each variety. This statement is in accordance with Sadjad (1993), which states that differences in growing power between different varieties are determined by genetic factors.

Fruit diameter affects fruit weight, because the larger the fruit weight, the fruit diameter also has an effect. According to Rahmi (2002), fruit weight tends to be positive on fruit diameter and pruning also affects fruit diameter.

Table 9 – The average thickness of the melon plant flesh in hydroponic drip irrigation from the treatment of different planting media compositions for melon varieties (mm)

Varieties (V)	Media (M)			Average
	M1	M2	M3	
V1 (Apollo)	15,00	14,00	15,00	14,67 a
V2 (Authumn)	14,00	16,00	14,00	14,67 a
V3 (Alisha)	15,33	16,00	16,00	15,78 b
Average	14,78	15,33	15,00	
LSD 5%:		0,40		

The results of the analysis of the thickness of the fruit flesh showed that the treatment of the composition of the planting medium and the variety had no interaction with the variable thickness of the fruit flesh, but there was a significant effect on the single treatment of the growing medium and a significant effect on the variety of melon plants on the variable thickness of the fruit.

In addition to the weight of the fruit, the thickness of the fruit flesh is also affected by the number of leaves.

According to Gaeder et al (1991), states that the part of the plant that contributes the most to plant growth and development are leaves and some assimilation remains.

Based on the average thickness of the melon plant flesh, it showed that the treatment with a media composition of 75% cocopeat + 25% husk charcoal (M1) was the best combination with an average value of 42.36 mm, significantly different from a media composition of 75% husk charcoal + 25% cocopeat (M2) with an average value of 30.82 mm, but not significantly different from the 50 media combination% cocopeat + 50% (M3) husk charcoal with an average value of 41.53 mm.

The results of the average thickness of the melon plant flesh showed that the Alisha variety (V3) was the best treatment with an average value of 44.29 mm, significantly different from the Authumn variety (V2) with an average value of 34.43 mm and the Apollo variety (V1) with an average value of 35.99 mm.

The thickness of the melon plant flesh indicates that the treatment of the composition of the planting medium 75% cocopeat + 25% husk charcoal (M1) is the best combination of media, this is presumably because cocopeat also has high water absorption and husk charcoal which has porous properties and is able to store water well. Cocopeat and husk charcoal are organic media that contain lots of potassium and carbon which are useful for plant growth and development.

According to Sutedjo (2002) the function of K in plants is to form proteins and carbohydrates, increase resistance to disease and improve fruit quality.

This genetic difference is likely what causes the thickness of the fruit flesh to differ from one variety to another. Rukrnana (1994) states that the genetic properties of each variety have different characters in the formation of quality melons. The character of the fruit of a particular variety has left in the tissue for cell division, when translocation is slow it can be converted into starch or a form of food reserves.

The results of analysis of various sugar content showed that the treatment of growing media and nutrient concentrations had no interaction with the sugar content variable (brix), but there was a significant effect on the single factor of the variety on the sugar content variable (brix).

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Based on the best average sugar content (brix), namely the Alisha variety (V3) treatment with an average value of 15.78%, significantly different from the Apollo (V1) and Authumn (V2) varieties with an average value of 14.67%.

the average sugar content (brix) of the Alisha variety melon plants gave the best results compared to the Apollo and Authumn varieties, this was thought to be due to the genetic factors (variety) of the plants themselves. According to Sidik et al (2012), one that influences the maximum value of sugar content is variety. Another reason is that the water content observed visually, the Alisha variety has a lower water content than the Authumn variety, with a sugar content of 15.78%, while the water content of the Authumn variety melon is higher than that of the Alisha variety, this causes a low sugar content of 14.67%, it spoils easily when stored, breaks easily and feels soft when consumed.

According to Reall and Lipton in Deus (2014) one of the criteria for fruit with good quality and preferred by consumers is to have low to moderate water content. Affandi (2008), also added that differences in the sugar content of melon plants are also caused by environmental factors, namely the intensity of sunlight.

The best variety treatment was able to increase plant growth and yield on the variable plant length at 7 HST, namely 10.00 cm, the first flowering age was 12.33 days, the harvest age was 57.33 days, and the sugar content was 15.78%. The Authumn variety (V2) was the best treatment capable of increasing plant growth in variable stem diameter at 14 DAP, which was 6.92 mm and at 28 DAP, which was 9.67 mm. The Apollo variety (V1) was the

best variety to increase plant growth in the variable length of the plant at 7 HST, namely 10.98 cm, the number of leaves at 14 HST, namely.

CONCLUSION AND RECOMMENDATIONS

Based on the results of the study it can be concluded that:

- The interaction treatment of the composition of the planting medium and plant varieties had a significant effect on growth and yield on fruit diameter and fruit weight variables with the best composition treatment of 75% cocopeat + 25% rice husk charcoal and the Alisha variety (M1V3), fruiting age with the best composition treatment of 75% cocopeat + 25% husk charcoal and Apollo variety (M1V1);
- Different melon varieties provide different growth and yield, the Alisha melon variety (V3) has 8.44 strands and a flowering age of 11.89 days;
- Treatment of the composition of the planting medium 75% cocopeat + 25% husk charcoal increased growth in the variable plant length at 21 DAP of 108.44 cm. While the combination of planting media 50% cocopeat + 50% husk charcoal increased growth in the variable plant length at 28 DAP of 188.78 cm. The composition of the planting medium 75% cocopeat + 25% husk charcoal increased yields on the fruit flesh thickness variable of 42.36 mm.

Cultivating melons using a hydroponic drip irrigation system, it is recommended to use melon seeds of the Alisha F1 variety and a planting medium composition of 75% cocopeat + 25% husk charcoal. Cultivating melons using a hydroponic drip irrigation system, it is necessary to check the flow of nutrients from the reservoir to each main pipe to the dripper stick so that the flow of nutrients runs optimally.

REFERENCES

1. Affandi. 2008. Pemanfaatan Urine Sapi yang Difermentasi Sebagai Nutrisi Tanaman. https:// www.affandi21.xanga.com. Diakses tanggal 30 Juli 2017.
2. Badan Pusat Statistik. 2020. Hortikultura Produksi Tanaman Buah Melon (Ton) (http://www.bps.go.id/site/pilihdata) (Verified 16 November 2020).
3. Bacthiar, S., M. Rizal & D. Safitri. 2017. Pertumbuhan Komposisi Media Hidroponik Terhadap Pertumbuhan Tanaman Tomat. Jurnal Biology Science and Education. Vol 6 (1): 52-59.
4. Arisandi. 2013. Pengaruh Media Tanam Terhadap Pertumbuhan Vegetatif Tanaman Mentimun (Cucumis sativus L). Program Studi Pendidikan Biologi Sekolah Tinggi Keguruan dan Ilmu Pendidikan. Sumatra Barat.
5. Sani, B. 2015. Hidroponik. Penebar Swadaya. Jakarta.
6. Sapei, A. 2006. Irigasi Tetes (https://www.asepsapei.staff.ipb.cd.id.p df) (Verified 16 November 2020).
7. Agrowindo. 2015. Peluang Usaha Budidaya Melon Golden dan Analisa Usahanya.(https://www.agrowindo.com/p eluang-usaha-budidaya-melon-golden- dan-analisa-usahanya.htm) (Verified 16 November 2020).
8. Cahyono, B. 2007. Kedelai (Teknik Budidaya dan Analisis Usaha Tani). Aneka Ilmu. Semarang.
9. Perwitasari, B., Mustika T., Catur W. 2012. Pengaruh Media Tanam dan Nutrisi Terhadap pertumbuhandan Hasil Tanaman Pakcoy (Brassica chinensis) Dengan Sitem Hidroponik . Agrovigor : 5 (1) : 14-25.
10. Pantilu, L.I., Mantiri, F.R., dan D. Pandiangan. 2012. Respon Morflogi dan Anatomi Kecambah Kedelai (Glycine max L) Terhadap Intensitas Cahaya yang Berbeda. Jurnal Bioslogos. Vol 2(2) : 79-97.
11. Syarif, Z. Irawati C., Novita H. 2010. Pertumbuhan dan Produksi Tanaman Mentimun Varietas Lokal dan Antara (Cucumis sativus L) Terhadap Pemberian Berbagai Konsentrasi Ethephon. Jerami. Vol 3(2).124-131.
12. Jumin, H.B. 2005. Dasar-Dasar Agronomi. Edisi Revisi. P.T. Raja Grafindo Parsada.

Jakarta.
13. Rukrnana, R. 1994. Budidaya Melon Hibrida. Kanisius. Yogyakarta.
14. Sidik, N.J., S. Hashim, Y.S. Mohd., S. Abdullah. 2012. Characterization of Plant Growth, Yield and Fruit Quality of Rockmelon (Cucumis melo L) Cultivars Planted on Soilless Culture. J. of Plant Sciences. 7(5): 186-193.
15. Meidiyustiani, R., Oktaviani, R. F., & Niazi, H. A (2021). Pkm Pemanfaatan Lahan Melalui Tanaman Berbasis Teknologi Hidroponik. Jurnal Pendidikan Dan Pengabdian Masyarakat, 4(4).
16. Mahmudati, R., & Hakim, M. F (2022, November). Alat Hidroponik Sistem Wick Sebagai Teknologi Tepat Guna Untuk Mewujudkan Ketahanan Pangan. In Prosiding Seminar Nasional Unimus (Vol. 5).
17. Rahman, A., Sasongko, A., Gunawan, A., Kiswoyo, D., & Purwanto, M (2021, November). Penerapan Teknologi Tepat Guna Photovoltaic Sebagai Sumber Tenaga Listik Hidroponik Untuk Masyarakat Kelurahan Kariangau Balikpapan. In Seminar Nasional Pengabdian Kepada Masyarakat (Sepakat) (Vol. 2).
18. Romalasari, A., & Sobari, E (2019). Produksi selada (Lactuca sativa L.) menggunakan sistem hidroponik dengan perbedaan sumber nutrisi. Agriprima, Journal of Applied Agricultural Sciences, 3(1), 36-41.
19. Astuti, E., Wardana, I. N. G., Sonief, S., & Sarosa, S (2020). Pemodelan Pemilihan Artificial Light Hidroponik Terbaik Menggunakan Artificial Intelligence. Sentia 2020, 12(1).
20. Nora, S., Yahya, M., Mariana, M., Herawaty, H., & Ramadhani, E (2020). Teknik Budidaya Melon Hidroponik dengan Sistem Irigasi Tetes (Drip Irrigation). AGRIUM: Jurnal Ilmu Pertanian, 23(1), 21-26.
21. Suwati, S., Muanah, M., Huda, A. A., & Gunawan, A (2022). Economic analysis of tomato cultivation on dryland with drip irrigation technique. Jurnal Agrotek Ummat, 9(3), 190-197.
22. Setyaningrum, D. A (2014). The application of drip irrigation system on tomato (Lycopersicum esculentum Mill). Jurnal Teknik Pertanian Lampung (Journal of Agricultural Engineering), 3(2).