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Application of Organic Fertilizer POC (Rice Washing Water) and Cow Manure on The Growth and Yield of Bird's Chili *(Capsicum Frutescens L) Plants*

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Abstract
This study aims to determine the effect of liquid organic fertilizer (POC) application from rice water washing and cow manure on the growth and yield of cayenne pepper (Capsicum frutescens L). The method used is a Randomized Block Design (RBD) with two treatment factors, namely the concentration of POC (10 cc.l $^{-1}$, 20 cc.l $^{-1}$, and 30 cc. l ---1) and the dose of cow manure (10 tons ha $^{-1}$, 15 tons ha $^{-1}$-, and 20-tons ha $^{-1)}$. The results of the analysis showed that the interaction between the concentration of POC and the dose of cow manure did not have a significant effect (P>0.05) on all observed variables. The treatment of rice water washing POC concentration gave the highest fresh weight of fruit bunches at a concentration of POC (C3) 30 cc.l^{-}, namely 44.18 g, or an increase of 6.4% from the lowest fresh weight of fruit bunches obtained at a concentration of POC (C1) 10 cc.l^{-1}, namely 40.19 g, the highest oven dry weight of fruit bunches at a concentration of POC 30 (C3) cc.l^{-1}, namely 10.49 g, an increase of 28.5%. The treatment of cow manure dose had no significant effect (P>0.05) on all observed variables. There was a significant effect on the number of harvested fruits per plant, where the treatment of POC 30 cc.l $^{-1}$ and the dose of cow manure 30 tons ha $^{-1}$. This study concluded that the use of liquid organic fertilizer (POC) from rice washing water and cow manure can increase cayenne pepper yields, although the effect varies depending on the variables observed. It is hoped that these results will provide useful information for farmers in sustainably increasing cayenne pepper productivity.

Keywords: *POC; Chili Pepper; Cow Manure*

1. Introduction

Chili peppers are a highly important and economically valuable crop suitable for cultivation in tropical regions such as Indonesia. This demonstrates that chili peppers are an essential part of everyday life. Chili peppers can grow in both lowland and highland areas and are resistant to disease [1]. In general, chili peppers contain nutrients such as fat, protein, carbohydrates, calcium, phosphorus, iron, vitamins A, B1, B2, and C, and alkaloid compounds such as capsaicin, oleoresin, flavonoids, and essential oils [2].

With the growing population and the development of industries requiring chili as a raw material, demand for chilies has increased year after year. Indonesia's chili production is insufficient to meet the national demand of 4.35 tons/ha, forcing the government to import more than 4.35 tons/ha of chilies from the 16,000 tons per year. Although the average national chili production is only 4.35 tons/ha, the potential production could reach more than 10 tons/ha. [3]

Liquid organic fertilizer and cow manure are two types of fertilizer frequently used in both organic and conventional farming. The application of these two types of fertilizer is believed to improve the growth of chili plants and the quality of the harvest. Therefore, research on the effects of liquid organic fertilizer and cow manure on chili plant growth is highly relevant and has attracted the attention of farmers and agricultural researchers. Organic fertilizer is a fertilizer that

helps increase the biological, chemical, and physical activity of the soil, making it fertile and suitable for plant growth [4]. Currently, most farmers still rely on inorganic fertilizers because they contain several nutrients in large quantities. Continuous use of inorganic fertilizers can harm soil conditions. Soil conditions that quickly become hard and decrease water-holding capacity can be caused by various factors, including improper soil management. This can cause the soil to become acidic and significantly reduce plant productivity [5].

Manure from cows is included in compost. Cow manure has various benefits, including improving the soil and serving other purposes. It acts as a decomposer of organic matter by soil microorganisms. The nutrient content in cow manure has significant benefits, namely as plant nutrition for optimal growth. Manure from cow waste is one type of organic material that can be used as fertilizer and as a mixture in planting media. Cow manure contains various nutrients that can improve the physical characteristics of the soil, as well as its chemical and biological aspects. In addition to providing nutrients and increasing the effectiveness of fertilization and nutrient absorption for plant yields, the availability of nutrients is crucial in the plant's metabolic processes. The impact of increasing cow manure in the planting medium can increase the level of soil porosity related to air circulation and moisture in the planting medium [6].

Rice washing water is a common waste product. The high consumption of rice in daily life results in a large amount of rice washing water being wasted and rarely used [7]. Liquid organic fertilizer (POC) derived from rice washing water is an easily available and environmentally friendly organic fertilizer option. Rice washing water contains a number of essential nutrients, such as nitrogen, phosphorus, potassium, and microelements needed for plant growth.

The use of POC from rice washing water in chili farming is becoming increasingly important, considering the increasing need for quality and sustainable agricultural products. Rice washing water has many benefits for plants, is easily obtained by farmers, and is environmentally friendly, has an affordable price, so it can be accessed by farmers. The remaining rice washing water is a by-product resulting from a processing process, either industrial or household, which no longer has economic value [8]. Chili plants have several regional names, including in Java with the name Lombok japlak, cengis, ceplik, or cempling, while in West Java, especially the Sundanese, another name for cayenne pepper is cengek. Internationally, cayenne pepper is known as Thai pepper [9]. According to Simpson [10], the roots of cayenne pepper plants are included in woody shrubs that have a taproot shape and have side branches forming fibrous roots (tertiary roots). The primary roots of cayenne pepper plants are 35-50 cm long, and the secondary roots are typical roots that can spread to a length of 35-45 cm [11]. Chili pepper stems are woody, dark green when they are productive, but become brownish and stiff as they mature. Chili pepper stems can reach 37.5 cm and 3 cm in length and diameter, respectively, depending on the variety. The branches of the chili pepper stem, which are stalks that support the leaves, can reach up to 5 cm in length [12].

The leaves of the cayenne pepper plant generally have an oval shape with a pointed tip, flat edges, and pinnate veins. The leaves of cayenne pepper are light green or dark green, with a flat leaf surface, and are up to 4.7 cm long and 2.3 cm wide depending on the variety [13].

Chili pepper flowers have a trumpet-like shape that grows in the leaf axils, and are included in perfect flowers because they have one pistil and 6 stamens, which are located in one flower. The crown of the chili pepper flower also has various colors, such as white, greenish white, yellow, light yellow, and purple, depending on the variety [14]. Pollination in chili plants can be done either alone or cross-pollinated with the help of insects and wind, but only has a percentage of 7.6-36.8%, and chili pepper flowers generally form and bloom at the age of 23-31 days after planting [15].

Fruit: The result of pollination is the formation of fruit. Chili peppers vary in size and color depending on the variety. Chili peppers generally come in various colors, red, green, yellow, or white, measuring 2-3.5 cm in length and 0.4-0.7 cm in diameter. Chili pepper seeds are located inside the fruit, which is round and flat, measuring 2-2.5 cm in diameter and yellowish-white in color, attached to the placenta inside the chili pepper [16]. Organic fertilizers increase the chemical, biological, and physical activity of the soil and make it fertile. Organic fertilizers are available in solid and liquid forms. Although the use of organic fertilizers has many benefits, the

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dosage of organic fertilizers must also be considered because high doses can cause wilting symptoms in plants [17]. Proper fertilization can make plants healthier, and yields are relatively constant, and water-soluble nutrients can be reduced. POC is a liquid fertilizer obtained by dissolving organic materials. The advantage of POC compared to other fertilizers, such as compost, green waste, and manure, is that the nutrients are absorbed more quickly by plants. POC can replace and reduce the use of chemical fertilizers [18]. Organic materials that can be used as raw materials for POC include livestock manure, vegetable waste, fruit waste, and eggshells. POC can be easily mixed according to plant needs. POC can be made with a simple composter. Plastic drums containing filters can be used as composting tools. Direct application of fertilizer with a high-water content requires more energy, and the ammonia release process is still ongoing. Applying too high a dose of cow manure will cause stunted plant growth and development because it can cause poor aeration.

2. Materials and Methods

This research was conducted for 4 months from May 7 to August 30, 2024. This research was conducted in the Subak Serobian rice fields, Anggungan Village, Mengwi District, Badung Regency. This research was a factorial experiment using a Randomized Block Design (RBD) with 2 treatment factors consisting of:

The first factor is: POC concentration © which consists of 3 levels, namely:

C1= 10 $cc.l^{-1}$
C2 20 $cc.l^{-1}$
C3= 30 $cc.l^{-1}$

The second factor is: Cow manure (P), which consists of 3 levels, namely:

P1= 10 tons ha^{-1}
P2= 15 tons ha^{-1}
P3= 20 tons ha^{-1}

The variables observed in this study include maximum plant height (cm), maximum number of leaves (strands), number of harvested fruits per plant (fruit), fresh weight of fruit per plant (g), oven dry weight of fruit per plant, fresh weight of root stalks, fresh weight of stem stalks, fresh weight of leaf stalks, fresh weight of fruit stalks, oven dry weight of root stalks, oven dry weight of stem stalks, oven dry weight of leaf stalks, oven dry weight of fruit stalks. The experimental data were analyzed according to the design used. Single treatments that had a significant to very significant effect were continued with the LSD test at 5% level, and for interactions that had a significant to very significant effect were continued with the Duncan test at 5% level.

3. Results and Discussion

Based on the results of statistical analysis of all variables observed in the study presented in Appendix 1-13. Based on the results of the analysis, the significance of the effect of providing POC concentration fertilizer (C) and the dose of cow manure (P) and their interaction (CxP) on the observed variables is presented in Table 1.

Table 1. Significance of the effect of POC concentration and cow manure dose on all observed variables

No	Observation Variables	Treatment		
		C	P	CxP
1	Maximum Plant Height (cm)	ns	ns	ns
2	Maximum Number of Leaves Per Plant (sheet)	ns	ns	ns
3	Number of Fruits Harvested Per Plant (fruit)	ns	ns	ns
4	Fresh Fruit Weight Per Plant (g)	ns	ns	ns
5	Fruit Oven Dry Weight Per Plant (g)	ns	ns	ns
6	Fresh Weight of Roots Per Plant (g)	ns	ns	ns
7	Fresh Weight of Stems Per Plant (g)	ns	ns	ns
8	Fresh Weight of Leaf Stalks Per Plant (g)	ns	ns	ns
9	Fresh Weight of Fruit Stalks Per Plant (g) (remaining)	*	ns	ns

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10	Oven Dry Weight of Roots Per Plant (g)	ns	ns	ns
11	Oven Dry Weight of Stems Per Plant (g)	ns	ns	ns
12	Oven Dry Weight of Leaves Per Plant (g)	ns	ns	ns
13	Oven Dry Weight of Fruit Per Plant (g) (remaining)	*	ns	ns

Information:
ns = no significant effect (P>0.05)
*= significantly affected (P<0.05)
**= very significant effect (P<0.01)

The interaction between the concentration of POC and the dose of cow manure (CxP) had no significant effect (P>0.05) on all observed variables. The treatment of POC concentration (C) had no significant effect (P>0.05) except for a significant effect (P<0.05) on the fresh weight of fruit bunches per plant and the oven-dry weight of fruit bunches per plant. Meanwhile, the treatment of cow manure had no significant effect on all variables (P>0.05) (Table 1).

3.1.1 Maximum plant height

The average maximum plant height was higher in the treatment of rice water washing concentration (C) 10 cc l^{-1}, namely 115.65 cm, which was not significantly different from the other treatments (Table 2). The average maximum plant height was higher in the treatment of cow manure dose 20 tons ha^{-1} (P) ha^{-1}, namely 115.29 cm, which was not significantly different from the other treatments (Table 2).

3.1.2 Maximum number of leaves (blades)

The average maximum number of leaves (strands) was higher in the treatment of rice water washing concentration (C) 30 $cc.l^{-1}$, namely 57.78 strands, which was not significantly different from other treatments (Table 2). The average maximum number of leaves (strands) was higher in the treatment of cow manure dose (P) 20 tons ha^{-1}, namely 58.44 strands, which was not significantly different from other treatments (Table 2).

Table 2: average maximum plant height (cm) and maximum number of leaves (strands) due to the influence of the concentration of POC from rice washing water and the dose of cow manure

Treatment	Total Plant Height (cm)	Maximum Number of Leaves Per Plant (sheet)
C concentration		
C1 (10 cc. l-1)	115.65 a	57.44 a
C2 (20 cc. l-1)	108.62 a	56.22 a
C3 (30 cc. l-1)	108.20 a	57.78 a
LSD 5%	-	-
P dose		
P1 (10 tons ha^{-1})	105.30 a	56.33 a
P2 (15 tons ha^{-1})	111.88 a	58.44 a
P3 (20 tons ha^{-1})	115.29 a	56.67 a
LSD 5%	-	-

Note: Mean values followed by the same letter in the same column indicate no significant difference in the 5% LSD test.

3.1.3 Number of harvested fruits

The average high number of harvested fruits per plant (fruit) was higher obtained from the treatment of rice water washing concentration (C) 30 $cc.l^{-1}$, namely 107.33 fruits, which was not significantly different from the other treatments (Table 3). The average number of harvested fruits per plant (fruit) was higher in the treatment of cow manure (P) dose of 20 tons ha^{-1}, namely 121.67, which was not significantly different from the other treatments (Table 3).

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3.1.4 Fresh weight of fruit per plant

Average fresh weight of fruit per plant (g) (fruit) higher was obtained with the rice water washing concentration treatment (C) of 30 cc.l $^{-1}$, namely 231.33 g of fruit, which was not significantly different from the other treatments (Table 3) Average fresh weight of fruit per plant (fruit) higher was obtained in the treatment of cow manure (P) dose of 20 tons ha $^{-1}$, namely 251.00 g, which was not significantly different from the other treatments (Table 3).

Table 1 Average number of fruit harvests per plant (fruit) and fresh weight of fruit per plant due to the influence of the concentration of POC from rice washing water and the dose of cow manure (P)

Treatment	Number of Fruits Per Plant (fruit)	Fresh Fruit Weight Per Plant (g)
C concentration		
C1 (10 cc. l-1)	103.00 a	198.22 a
C2 (20 cc. l-1)	102.67 a	210.67 a
C3 (30 cc. l-1)	107.33 a	231.33 a
LSD 5%	-	-
P dose		
P1 (10 tons ha $^{-1}$)	92.67 a	193.89 a
P2 (15 tons ha $^{-1}$)	98.67 a	195.33 a
P3 (20 tons ha $^{-1}$)	121.67 a	251.00 a
LSD 5%	-	-

Note: Mean values followed by the same letter in the same column indicate no significant difference in the 5% LSD test.

3.1.5 Oven dry weight of fruit per plant (g)

The average oven dry weight of fruit per plant (g) was higher when obtained from the treatment of rice water washing concentration (C) 20 cc.l^{-1}, namely 38.12 g, which increased by 24.73% compared to the oven-dry weight of the fruit. The average oven dry weight of fruit per plant (g) was higher in the treatment of cow manure (P) dose of 15 tons ha^{-1}, namely 37.18 g, which was not significantly different from the other treatments (Table 4).

3.1.6 fresh weight of root stems

The average fresh weight of root shoots was higher in the treatment of rice water washing concentration (C) of 10 cc.l $^{-1}$, namely 33.58 g, which increased by 32.8% compared to the fresh weight of root shoots. The average fresh weight of root shoots was higher in the treatment of cow manure dose (P) of 20 tons ha $^{-1,}$ namely 33.60 g, which was not significantly different from the other treatments (Table 4).

Table 2.Average oven dry weight of fruit per plant (g) and fresh weight of root shoots due to the influence of the concentration of POC from rice water washing and the dose of cow manure (P).

Treatment	Fruit Oven Dry Weight Per Plant (g)	Fresh Weight of Roots
C concentration		
C1 (10 cc. l-1)	34.41 a	33.58 a
C2 (20 cc. l-1)	38.12 a	32.71 a
C3 (30 cc. l-1)	37.20 a	32.52 a
LSD 5%	=	=
P dose		
P1 (10 tons ha $^{-1}$)	36.96 a	32.96 a
P2 (15 tons ha $^{-1}$)	37.60 a	32.26 a
P3 (20 tons ha $^{-1}$)	35.60 a	33.52 a
LSD 5%	=	-

Note: Mean values followed by the same letter in the same column indicate no significant difference in the 5% LSD test.

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3.1.7 Fresh stem weight

The average fresh weight of the stem was higher in the treatment of rice water washing concentration (C) of 10 cc.l $^{-1}$, namely 86.08 g, which increased by 10.56% compared to the fresh weight of the stem. The average fresh weight of the stem was higher in the treatment of cow manure dose (P) of 10 tons ha$^{-1,}$ namely 83.71 g, which was not significantly different from the other treatments. Average fresh weight per leaf stalk. The treatment of rice water washing POC concentration (C) and cow manure fertilizer dosage (P) is presented in Table 5.

3.1.8 Fresh weight of leaf stalks

The average fresh weight of leaf stalks was higher when obtained from the treatment of rice water washing concentration (C) 30 cc.l^{-1}, namely 21.79 g, which increased by 5.27% compared to the fresh weight of the leaf stalks. The average fresh weight of the leaf stalks was higher in the treatment of cow manure (P) dose of 10 tons ha^{-1}, namely 22.56 g, which was not significantly different from the other treatments (Table 5).

Table 3. Average fresh weight of stem shoots and fresh weight of leaf shoots due to the influence of the concentration of POC from rice washing water and the dose of cow manure (P)

Treatment	Stem Fresh Weight	Fresh Weight of Leaf Stalks
C concentration		
C1 (10 cc. l-1)	86.08 a	21.79 a
C2 (20 cc. l-1)	84.39 a	21.99 a
C3 (30 cc. l-1)	85.18 a	21.88 a
LSD 5%	-	-
P dose		
P1 (10 tons ha $^{-1}$)	86.30 a	22.56 a
P2 (15 tons ha $^{-1}$)	85.63 a	21.01 a
P3 (20 tons ha $^{-1}$)	83.71 a	22.09 a
LSD 5%	-	-

Note: Mean values followed by the same letter in the same column indicate no significant difference in the 5% LSD test.

3.1.9 Fresh fruit ripe weight

The average fresh weight of the fruit bunches was higher in the treatment of rice water washing, POC concentration (C) 30cc.l^{-1}, namely 44.18 g, which increased by 6.4% compared to the fresh weight of the fruit bunches. The average fresh weight of the fruit bunches was higher in the treatment of cow manure (P) dose of 20 tons ha^{-1}, namely 42.44 g, which was not significantly different from the other treatments (Table 6).

3.1.10 Oven Dry Weight of Roots

The average weight of oven-dried root stalks was higher in the treatment of rice water washing concentration (C) of 30 cc.l^{-1}, namely 14.91g, which increased by 14.8% compared to the fresh weight of root stalks. The average weight of oven-dried root stalks was higher in the treatment of cow manure dose (P) of 20 tons ha $^{-1,}$ namely 14.77g, which was not significantly different from the other treatments (Table 6).

Table 4. Average fresh weight of fruit shoots and fresh weight of root shoots due to the influence of the concentration of POC in rice washing water and the dose of cow manure (P)

Treatment	Fresh Weight of Fruit Bunches	Oven Dry Weight of Roots
C concentration		
C1 (10 cc. l-1)	40.19 b	14.91 a
C2 (20 cc. l-1)	41.53 b	14.07 a
C3 (30 cc. l-1)	44.18 a	13.91 a

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LSD 5%	2.56	-
P dose		
P1 (10 tons ha $^{-1}$)	41.83 a	14.41 a
P2 (15 tons ha $^{-1}$)	41.62 a	13.71 a
P3 (20 tons ha $^{-1}$)	42.44 a	14.77 a
LSD 5%	-	-

Note: Mean values followed by the same letter in the same column indicate no significant difference in the 5% LSD test.

3.1.11 Dry weight of bar-frame oven

The average dry weight of the oven with stem rafts was higher in the treatment of rice water washing concentration (C) of 30 cc.l^{-1}, namely 33.99 g, which increased by 15.83% compared to the dry weight of the oven with stem rafts. The average dry weight of the oven with stem rafts was higher in the treatment of cow manure dose (P) of 20 tons ha $^{-1,}$ namely 33.61 g, which was not significantly different from the other treatments (Table 7).

3.1.12 Oven-dry weight of leaf stems

The average dry weight of the leaf-based oven was higher in the treatment of rice water washing concentration (C) of 20 cc.l^{-1}, namely 9.28 g, which increased by 11.9% compared to the dry weight of the leaf-based oven. The average dry weight of the leaf-based oven was higher in the treatment of cow manure dose (P) of 15 tons ha^{-1}, namely 9.27 g, which was not significantly different from the other treatments (Table 7).

3.1.13 Oven-dry weight of fruit bunches

The average dry weight of the fruit in the oven was higher in the treatment of rice water washing POC concentration (C) 20c/l^{-1}, namely 10.49 g, which increased by 28.5% compared to the dry weight of the fruit in the oven. The average dry weight of the fruit in the oven was higher in the treatment of cow manure (P) dose of 20 tons ha$^{-1,}$ namely 10.31 g, which was not significantly different from the other treatments (Table 7).

Table 7. 5Dry Weight of Stem-Based Oven, Dry Weight of Leaf-Based Oven, and Dry Weight of Fruit-Based Oven due to the influence of the concentration of POC in rice washing water and the dose of cow manure (P)

Implementation	Dry Weight of Bar Range Oven	Oven Dry Weight of Leaves	Oven Dry Weight of Fruit Bunch
C concentration			
C1 (10 cc. l-1)	33.04 a	9.17 a	9.50 b
C2 (20 cc. l-1)	33.46 a	9.28 a	10:49 a
C3 (30 cc. l-1)	33.99 a	9.07 a	10.52 a
LSD 5%	2.15	-	0.81
P dose			
P1 (10 tons ha $^{-1}$)	33.28 a	9.27 a	10.21 a
P2 (15 tons ha $^{-1}$)	33.60 a	9.09 a	9.99 a
P3 (20 tons ha $^{-1}$)	33.61 a	9.16 a	10:31 a
LSD 5%	2.15	-	-

Note: Mean values followed by the same letter in the same column indicate no significant difference in the 5% LSD test.

3.2 Discussion

The interaction between the concentration of POC and the dose of cow manure (CxP) had no significant effect (P>0.05) on all observed variables. The treatment of POC concentration (C) had no significant effect (P>0.05) except for a significant effect (P<0.05) on the fresh weight of fruit

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bunches per plant and the oven-dry weight of fruit bunches per plant. Meanwhile, the treatment of cow manure had no significant effect on all variables (P>0.05) (Table 1).

The highest fresh weight of fruit bunches and oven dry weight of fruit bunches were obtained in the treatment of rice water POC concentration of 30 cc.l^{-1} (C3) namely 44.18 g and 10.49 g which increased by 6.4% and 28.4% compared to the average fresh weight of fruit bunches and the lowest oven dry weight of fruit bunches obtained in the treatment of rice water POC concentration of 10 cc.l^{-1} (C1), namely 40.19 g and 9.50 g. The high fresh weight of fruit bunches was supported by the number of harvested fruits per plant (0.920**), oven dry weight of fruit per plant (0.999**) and oven dry weight of fruit bunches, the high fresh weight of fruit bunches was supported by oven dry weight of fruit (0.964**), fresh weight of fruit (0.804**), fresh weight of leaf bunches (0.816**), fresh weight of fruit bunches (0.777**) and oven dry weight of fruit bunches. (0.997**).

Based on the research data, it can be seen from the interaction of the two fertilizer treatments, namely various types of POC (rice water washing) (C) with cow manure (P) which gave no significant effect on almost all variables except for the POC (rice water washing) treatment on the variables of fresh weight of fruit and dry weight of fruit oven, fresh weight of fruit refers to the total weight of fruit that still contains water, while dry weight of fruit oven is the weight of fruit after being dried in the oven, which removes water content. This difference reflects the water content in the fruit, which affects its nutritional value and quality. This study shows that the use of liquid organic fertilizer (POC) from rice washing water and cow manure has the potential to increase the growth and yield of cayenne pepper plants. Several reasons may explain why the effect of organic fertilizer POC and cow manure is not significant on several other variables, because these two fertilizers are organic fertilizers. Organic fertilizers take longer to be absorbed by plants than chemical fertilizers. Plants need several weeks to several months, even more than a year, to absorb nutrients from organic fertilizers. This is because organic fertilizers need to undergo a decomposition process by soil microorganisms before their nutrients are available to plants, while the POC used has a crucial element content, nitrogen, which is too low.

Plant height and number of leaves. The average maximum plant height and maximum number of leaves did not show significant differences between treatments. This indicates that although organic fertilizer can increase growth, other factors, such as soil and climate conditions, also play an important role. The highest maximum plant height was achieved in the treatment of POC 10 cc.l^{-1} (C1) and a dose of cow manure 20 tons ha^{-1}, although this difference was not statistically significant.

The number of fruits and fresh weight of fruits, the number of harvested fruits per plant, and fresh weight of fruits per plant showed better results in the treatment of POC 30 cc.l^{-1} (C3) and a dose of cow manure 20 tons ha^{-1} (P3). This shows that the combination of organic fertilizers can provide more optimal results in terms of fruit production. POC functions as a source of nutrients that are quickly absorbed by plants, which can improve the quality and quantity of harvests.

Oven-dry weights of fruit, roots, stems, and leaves showed that the 20 cc L^{-1} POC treatment (P2) produced better results than the other treatments. This suggests that POC can improve crop quality by increasing nutrient content in plants. However, it is important to note that excessively high fertilizer doses can cause wilting symptoms in plants.

The application of manure to chili plants has the ability to improve environmental conditions for plant development. As stated by [19], the advantages of cow manure or other organic fertilizers include the ability to change soil structure to be better for root development, improve soil holding power, and absorption capacity. Regarding water, improve the quality of life of organisms in the soil and increase the nutrients contained in the soil.

4. Conclusion

The treatment of rice water washing POC concentration gave the highest fresh weight of fruit bunches at a POC concentration (C3) of 30 cc.l^{-1}, namely 44.18 g, or an increase of 6.4% from the lowest fresh weight of fruit bunches obtained at a POC concentration (C1) of 10 cc.l^{-1}, namely

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40.19 g, the highest oven dry weight of fruit bunches at a POC concentration of 30 (C3) $cc.l^{-1}$, namely 10.49 g, an increase of 28.5% the lowest oven dry weight of fruit bunches was obtained at a POC concentration (C1) of 10 $cc.l^{-1}$, namely 9.5 g**.** The treatment of cow manure fertilizer doses had no significant effect (P>0.05) on all observed variables**.** The interaction between the concentration of rice water washing POC and the dose of cow manure (CxP) had no significant effect (P>0.05) on all observed variables.

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