

PAKCOY PLANT(*Brassica rapa*, L.) RESPONSE ON RICE WASHING WATER APPLICATION

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ABSTRACT

Pakcoy (Brassica rapa L.) which belongs to the Brassicaceae family is a type of vegetable plant originating from China. The increasing demand for Pakcoy in the market has caused various ways to increase the yield of Pakcoy plants, one of which is by applying rice washing water for watering. The purpose of this study was to determine the response of Pakcoy plants to the application of watering with rice water washing. The study was conducted with a Complete Randomized Design (RAK) of 4 repetitions and each repetition consisted of 6 polybags with a diameter of 20 cm so that the total polybag pots were 24 pieces. The treatment of watering rice water is distinguished by two compositions, namely P1 (1 liter of rice washing water + 1 liter of clean water) and P2 (1 liter of rice washing water + 2 liters of clean water). Observations include observations of plant height, number of leaves, and root length at plant ages of 14 dap and 21 dap. The conclusion of this study was that pakcoy plants responded to the application of watering with rice water wash. This is evidenced by the results of the analysis which shows a real difference between control plants and plants with treatment.

Keywords : pakcoy, rice washing water, plant growth

1. INTRODUCTION

Pakcoy (*Brassica rapa* L.) which belongs to the Brassicaceae family is a type of vegetable plant originating from China, and is currently starting to develop widely in the Philippines, Malaysia, Thailand and Indonesia (Setiawan, 2017). This vegetable is widely consumed as vegetables, a mixture of various dishes and pickles. The nutritional content of Pakcoy is quite high, and good for consumption to support a healthy lifestyle (Jayanti, 2020). According to USDA (2019), in 100 g of pakcoy there are 95.32 g of water, fiber 1 g, energy 13 kcal, protein 1.5 g, calcium 105 mg, phosphorus 27 mg, potassium 252 mg, vitamin A 4468 IU, vitamin C 45 mg and folate 66 µg.

The increasing demand for Pakcoy in the market has caused various ways to increase the yield of Pakcoy plants, one of which is by applying rice washing water for watering. Rice washing water is often considered useless water and is simply thrown away, even though it has the potential as organic liquid fertilizer. The content in rice washing water can be used to meet the nutrient needs of plants (Himayani&Aini, 2018). The chemical composition contained in rice washing water is carbohydrate 41.3 g, protein 26.6 g, fat 18.3 g, phosphorus 0.029 g, calcium 0.019 g, iron 0.004 g, and vitamin B 0.0002 g, (Paulina et al., 2020). Rice starch contains 0.8% N, 0.29% P₂O₅, 0.07% K₂O, 1.48% CaO, 1.14% MgO, 10.04% C- organic with C/N of 13, (Ariyanti et al., 2017). The

purpose of this study was to determine the response of Pakcoy plants to the application of watering with rice water washing

2. RESEARCH METODOLOGY

The study was conducted with a Complete Randomized Design (RAK) of 4 repetitions and each repetition consisted of 6 polybags with a diameter of 20 cm so that the total polybag pots were 24 pieces. The treatment of watering rice water is distinguished by two compositions, namely P1 (1 liter of rice washing water + 1 liter of clean water) and P2 (1 liter of rice washing water + 2 liters of clean water). Observations include observations of plant height, number of leaves, and root length at plant ages of 14 dap and 21 dap.

3. RELATED RESEARCH

3.1 Pakcoy (*Brassica rapa* L.)

Pakcoy (*Brassica rapa* L.) which belongs to the Brassicaceae family is a type of vegetable plant originating from China, and is currently starting to develop widely in the Philippines, Malaysia, Thailand and Indonesia (Setiawan, 2017). The classification of mustard pakcoy plants is as follows: Kingdom Plantae, Division Spermatophyta, Class Dicotyledonae, Order Rhoadales Family Brassicaceae, Genus Brassica, Species Brassica rapa L. Pakcoy leaves are stemmed, oval-shaped, dark green, and shiny, do not form a head, grow slightly upright or semi-horizontal, arranged in a tight spiral, attached to a depressed stem. Petioles, white or light green in color, fat and fleshy, the plant reaches a height of 15–30 cm.

3.2 Rice Washing Water

One of the abundant and easily available liquid organic waste is rice washing water. In addition to containing carbohydrates, rice washing water also contains quite a lot of minerals and proteins (Maharani, 2023). Rice washing water includes liquid organic waste that is abundant and easily available. In addition, rice water also still contains carbohydrates, minerals and proteins that are quite a lot. Rice washing water waste has been used for the growth of various plants. Wulandari et al (2012) stated that this waste can increase lettuce root growth at different types and levels of ar.

4 RESULTS AND DISCUSSION

Based on the results of the study, it was found that the application of watering with rice washing water had a noticeable effect on the growth of pakcoy plants at the age of 14 dap and 21 dap which were described in table 1 and table 2

Table 1. Average effect of rice washing water watering application on plant height, number of leaves, and root length of pakcoy plants aged 14 dap

No	Treatment	Plant height (cm)	Number of leaves (strand)	Root length (cm)
1	Control	9,21 b	4,52 b	2,56 b
2	P1	14,02 a	5,91 a	3,82 a
3	P2	12,44 a	5,53 a	3,71 a

Information: The average number followed by the same letter in the same column shows an unreal difference at the 5% BNT level

Based on the data in table 1 and table 2, it can be seen that the application with rice water watering has a noticeable influence on plant height, number of leaves and root length of pakcoy age 14 dap and 21 dap P1 treatment (1 liter of rice washing water + 1 liter of clean water) has the best effect on the observed growth parameters, compared to P2 treatment (1 liter of rice washing water + 2 liters of clean water), But it does not differ markedly. When compared with controls, treatment with P1 and P2 showed a marked difference.

Table 2. Average effect of rice washing water watering application on plant height, number of leaves, and root length of pakcoy plants aged 21 dap

No	Treatment	Plant height (cm)	Number of leaves (strand)	Root length (cm)
1	Control	13,36 b	6,35 b	4,76 b
2	P1	17,21 a	8,80 a	6,34 a
3	P2	16,40 a	8,47 a	6,21 a

Information: The average number followed by the same letter in the same column shows an unreal difference at the 5% BNT level

Rice washing water is water that comes from household waste that has undergone a process deposition that is usually not utilized, (Paulina et al., 2020). The results of this study are in line with the results of research by Purniawati et al., (2015) which showed that the provision of rice washing water and coconut water gave real results on the growth of rubber seedlings. Research by Baning et al., (2016), also states that the effect of giving brown rice washing water has a real effect ($P>0.05$) on the vegetative growth of pepper.

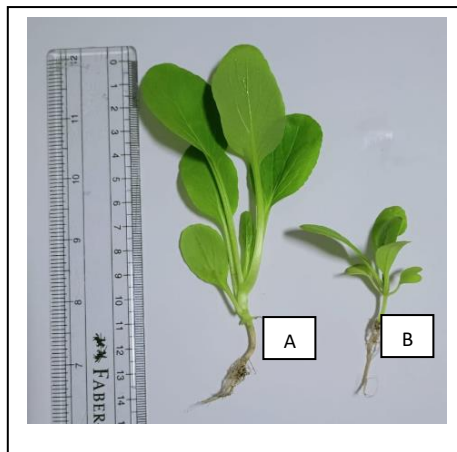


Figure 1. The difference between pakcoy given treatment (A) and control (B) age 14 dap

From Figure 1 it can be seen that there is a real difference between treated pakcoy and untreated pakcoy plants (konrol). The difference that can be seen physically is the height of the plant and the length of the roots.

5 CONCLUSION

The conclusion of this study was that pakcoy plants responded to the application of watering with rice water wash. This is evidenced by the results of the analysis which shows a real difference between control plants and plants with treatment.

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