
**VEGETABLE WASTE COMPOST AGAINST
GROWTH AND PRODUCTION OF CUCUMBER (*Cucumis
Sativus L*)****Sofyan Samad¹, Shubzan A. Mahmud², Sugeng Haryanto³, Hayun
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INFO A BSTRACT

Cucumber is fruit consumed by straight away. Destination how waste vegetables increase growth and production cucumber (*Cucumis sativus L.*). Research this is in the village South Ternate Tabona for 4 months started from month January April 2022. Ingredients and Tools. Materials used _ in study this is seed cucumber (var. hercules plus), fertilizer compost vegetables. Tool hoe, meter, scale, handsprayer, pH meter. Method study this is study experiment field with using polybag media. design random group (RAK) treatment 5 and test 3, namely: B0) without treatment, B1) 6 kg of soil + 4 kg of compost, B2) 5 kg of soil + 5 kg of compost, B3) 4 kg of soil + 6 kg of compost, B4) 3 kg of soil + 7 kg of compost. Character observation tall plant, number strand, fruit, fruit diameter, fruit length, weight fresh. Data analysis using Analysis of variance (BNT) 0.05. Results analysis variety show that growth with planting medium composition on B4 treatment (3 kg of soil + 7 kg of compost) gave enough response _ good to Cucumber, where? character 45 cm high plant, 13 strands, 3 pieces, 27 cm long fruit, 6 cm diameter fruit, and 1.37 kg weight fruit.

KEYWORDS

Compost waste vegetables, production cucumber

Sofyan Samad, Shubzan A. Mahmud, Sugeng Haryanto, Hayun
Abdullah, Norman Ahmad. (2022). Vegetable Waste Compost
Against Growth and Production of Cucumber (*Cucumis Sativus L.*)**How to cite:** Journal of Eduvest . Vol (Number): Page 1793-1799**E-ISSN:** 2775-3727**Published by:** <https://greenpublisher.id/>

INTRODUCTION

Cucumber is one of the most widely consumed fruit vegetables in Indonesia because the nutritional value of cucumber is quite good as a source of minerals and vitamins (Andrie, Napitupulu, & Jannah, 2015) (Wang, Wang, & Song, 2021). The nutritional content per 100 g is 0.5 mg iron, 0.45 vitamin A, 0.3 vitamin B1 and 0.2 vitamin B2. Cucumber plant (*Cucumis sativus* L.) which is included in this vine is one type of fruit vegetable plant from the pumpkin family (Cucurbitaceae) which is popular throughout the world and favored by the wider community (Sallaku, Babaj, Kaciu, & Balliu, 2009). According to history, the cucumber plant originated in Asia (Atiyeh, Edwards, Subler, & Metzger, 2000). Some literature sources mention the origin of cucumber plants is North Asia, but some are thought to have come from South Asia (Bayoumi, El-Henawy, Abdelaal, & Elhawati, 2019). According to other literary sources, cucumbers come from central and western China, then in northeastern India and Myanmar, the spread and production of cucumbers in Indonesia from year to year continues to increase (Sallam et al., 2021). For example, the area planted at the new location in the province of South Sumatra is 2,463 Ha and yields 43.99 kg per Ha from a production of 0.832 tons per year (Zahanis, Fatimah, & Anggraini, 2022).

Cucumber is also known in the health world as a cough medicine, fever reducer, even cucumbers that are steamed and stored a day and night and then left to stand will be efficacious in reducing pain and coughs (Bayoumi et al., 2019). Cucumber is one of the plants whose growing conditions are very flexible, because it can grow well in the lowlands and highlands. Cucumbers can grow and adapt to almost all types of soil (Eifediyi & Remison, 2010). Cultivation is widespread throughout the world, both in hot (tropical) and temperate (sub-tropical) climates. In Indonesia, cucumber plants are grown in lowland and highland areas 0–1000 meters above sea level (Samad, Shubzan, Haryanto, & Abdullah, 2022). The areas that become the center of cucumber cultivation are the Provinces of West Java, the Special Region of Aceh, Bengkulu, East Java and Central Java. Cucumber, which is needed by the community both to fulfill nutrition for the body, is also needed for the domestic cosmetic industry (Samad, Mahmud, Abdullah, Haryanto, & Samad, 2021)(Samad, Mahmud, Sabban, Haryanto, & Abdullah, 2021). Currently, Indonesia has exported cucumbers to several countries such as Malaysia, Singapore, Japan, England, France, and the Netherlands (Esmailpour, Einizadeh, & Pourrahimi, 2020).

Liquid fertilizer is the result of decaying organic materials derived from plant residues, animal and human wastes that contain more than one nutrient element (Oke et al., 2020). Organic fertilizers have the advantage of being able to quickly overcome nutrient deficiencies and not having problems in nutrient leaching as well as being able to provide nutrients quickly. Liquid fertilizers generally do not damage the soil and plants even though they are used as often as possible, this solution also has a binder so that the fertilizer solution applied to the

soil surface can be directly used by plants (Panggabean, Samiaji, & Efriyeldi, 2021).

Cucumber (*Cucumis sativus* L.) plant creeping generally consumed by directly (Andrie et al., 2015). Potency fruit cucumber have opportunity business like pickles, pickles, juices and others (Polat et al., 2009). Benefit as vegetables and drug cough. Fruit cucumber contain protein (Rahmawati, 2014). Indonesia 2019 cucumber descent production of 435,975 (BPS, 2019). This thing low productivity land (Panggabean et al., 2021). Fertilization business for raise fertility plants. Waste vegetables is vegetables that don't used then read fine and activator speed up fermentation for needed plants. so that land normal Becomes sustainable, is degraded (Roe, Stoffella, & Graetz, 1997). Based on problem on so conducted study about gift combo waste vegetables for could nourish plant so that take effect production this and how influence compost vegetables to character growth and production cucumber.

RESEARCH METHOD

Research this implemented in the village South Ternate Tabona for 4 months started from month January – April 2022. Seed cucumber, medium plant, water, dirt goat, EM4, compost waste vegetables. Tool hoe, meter, scale, handsprayer, polybag, pH meter. Method study this is study experiment field with using polybag media. design random group (RAK) treatment 5 and test 3 is B0) without treatment, B1) 6 kg of soil + 4 kg of compost, B2) 5 kg of soil + 5 kg of compost, B3) 4 kg of soil + 6 kg of compost, B4) 3 kg of soil + 7 kg of compost. Character observation tall plant, number strand, fruit, fruit diameter, fruit length, weight fresh. Data analysis using Analysis of variance (BNT) 0.05.

The process of making compost media with prepared materials consist from waste vegetables as much as 70 kg, top soil as much as 54 kg, prepare hole measuring 1x1 meter and dialed with tarpaulin plastic size 2x3 meters. Stage composting namely 1) Count until fine one one by one all waste agriculture used , 2) Input soil with height \pm 1 cm in equally to in the prepared hole , 3) Then coated waste vegetables with \pm 5 cm height by evenly , 4) Water with M4 in equally with size 1 liter on every layer with use cheers , 5) Repeat again step above 10 times later ingredient compost closed , 6) Let compost for 5 days , then open return and stirred until well mixed and closed return then left for 30 days , 7) After ripe compost waste agriculture ready used as a planting medium , 8) waste added farm with soil in accordance with treatment, the media entered into polybags. Procedure research. Preparation seeds good cucumber and quality. Planting seed cucumber , before seed Cucumbers are planted , especially first soaked dry and seed cucumbers are planted directly in the poly bag that has been filled soil and compost waste vegetables, gifts label, maintenance sprinkling and weeding what when around land and in the polybag there are growing weeds, embroidery _ conducted if there is seed cucumbers that don't grow or die , harvest cucumber harvested after 35-40 days old after plant , harvest by gradually with period 1 week time , done 3 harvests . _

RESULTS AND DISCUSSION

A. Results

Character growth and production gift compost vegetables very real all character production cucumber 21 HST and recapitulation score square middle character growth and fresh cucumber with treatment compost waste vegetables can be served Table 1.

Table 1. Character recapitulation growth and fresh cucumber with treatment compost waste vegetables

Source	Character Growth and Production Cucumber					
Diversity	On Age 21 HST					
	Tall Plant (cm)	Amount		Diameter	Long	Weight
		Leaves (strands)	Fruit	Fruit (cm)	Fruit (cm)	Fruit (kg)
group	4.44**	5.27*	0.2	0	0.39	0.03*
Treatment	286.76**	6.60*	1.93*	0.35**	18.44**	0.43**
Error	0.4	0.85	0.28	0.01	1.12	0.01
KK	2.03	9.67	24,19	1.51	4.42	9.34

Description: * real and ** very real

Based on character gift 3 kg of soil plus 7 kg of compost on age 21 HST 45 cm tall plants . Treatment of 4 kg of soil plus 6 kg of compost produce tall 37 cm plant . Treatment of 5 kg of soil plus 5 kg of compost tall plant 31 cm and different with other . Treatment of 6 kg of soil plus 4 kg of compost produce tall plants 25 cm and low on control 20 cm.

Character amount sheet on gift 3 kg of soil plus 7 kg of compost produce 13 strands same with giving 4 kg of soil plus 6 kg of compost different with other . Treatment B₃ 4 kg of soil plus 6 kg of compost same with B₂ and B₁ different B₀. Treatment B₂ same with B₁ and B₀. Character amount fruit treatment B₄ produce amount at most 3 pieces same with different B₃ with other Treatment B₂ same B₁ and different with B₀.

Table 2. Mean Difference Test character growth cucumber with treatment compost waste vegetables on 21 HST

Treatment	Average growth cucumber 21 HST		
	Tall	Amount	
	(cm)	Leaves (strands)	Fruit
B ₀ (control)	20.00 ^a	7.00 ^a	1.00 ^a
B ₁ (6 kg soil + 4 kg compost)	25.00 ^b	9.00 ^{ab}	2.00 ^b
B ₂ (5 kg soil + 5 kg compost)	31.00 ^c	9.00 ^{ab}	2.00 ^b
B ₃ (4 kg soil + 6 kg compost)	37.00 ^d	10.00 ^{bc}	3.00 ^c
B ₄ (3 kg soil + 7 kg compost)	45.00 ^e	13.00 ^c	3.00 ^c
BNT _{0.05}	01.20	02.54	01.00

Description: Numbers who follow by notation different on same column _ means no different real on BNT level 0.05

Character long leaf showing age 21 HST gives results best B₄ 27cm long fruit different other B₃ different with other Treatment of B₂ is the same B₁, B₀. _ _ Fruit diameter character show that treatment B₄ get 6 cm equal B₃ and other. B₂ _ no different with B₁, B₀. Character weight fruit treatment B₄ yielded 1.37 kg and _ no different with B₃, B₂, and different with B₁, B₀.

Table 3. Mean Difference Test character production cucumber with treatment compost waste vegetables

Treatment	Average production cucumber		
	Long	Diameter	Weight
	Fruit (cm)	Fruit (cm)	Fruit (kg)
B ₀ (control)	21.00 ^a	5.00 ^a	0.40 ^a
B ₁ (6 kg soil + 4 kg compost)	23.00 ^{ab}	5.00 ^a	0.73 ^a
B ₂ (5 kg soil + 5 kg compost)	24.00 ^b	5.00 ^a	0.87 ^{ab}
B ₃ (4 kg soil + 6 kg compost)	26.00 ^c	6.00 ^b	1.17 ^b
B ₄ (3 kg soil + 7 kg compost)	27.00 ^d	6.00 ^b	1.37 ^b
BNT _{0.05}	0.11	00.15	00.16

Description: Numbers who follow by notation different on same column _ means no different real on BNT level 0.05

CONCLUSION

Results analysis variety show that growth with planting medium composition on B₄ treatment (3 kg of soil + 7 kg of compost) gave enough response _ good to Cucumber, where? character 45 cm high plant, 13 strands, 3 pieces, 27 cm long fruit, 6 cm diameter fruit, and 1.37 kg.

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