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The Effect of Monosodium Glutamate and the Origin of Stem Cuttings on the Growth of Moringa Olifera Plants in Nurseries

Pengaruh MSG (Monosodium Glutamate) Dan Asal Stek Batang Terhadap Pertumbuhan Tanaman Kelor *(Moringa Olifera)* di Pembibitan

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ABSTRACT

Moringa olifera is known worldwide as a nutritious plant and World Health Organization has introduced Moringa as an alternative food to overcome nutritional problems (malnutrition). Moringa plants are sought after because they can be processed into a variety of herbal medicines to raw materials for skin care products. Moringa seeds and leaves are in a trend to be used for processed skin care products because of the nutrients they contain. This research was conducted in March 2020 until June 2020 in the village of Sei Karang, Stabat Subdistrict, Langkat Regency using a factorial randomized block design with 2 levels of treatment ie without MSG (P0), 2 g / 5 liters of water (P1), 5 g / 5 liters of water (P2), 7 g / 5 liters of water (P3), and stem stem cuttings (W1), middle cuttings (W2) and tip cuttings (W3). The results showed that the treatment of cuttings in the middle (W1) showed the highest with a value of 9.67 on the observation of the number of shoots, while the interaction of MSG and the origin of cuttings showed a significant effect on the emergence of the highest treatment shoots at P1W1 (2.5 g / 5 liters of water and stem section) with a value of 12.67 days and observation of root length in the P2W2 treatment (5 g / 5 liters of water and the middle section) with a value of 10.67

Keywords: MSG (Monosodium Glutamate), Origin of Cuttings, Moringa Plants

ABSTRAK

Tanaman Kelor *(Moringa olifera)* dikenal di seluruh dunia sebagai tanaman bergizi dan WHO telah memperkenalkan kelor sebagai salah satu pangan alternatif untuk mengatasi masalah gizi (malnutrisi). Tanaman kelor banyak dicari karena dapat diolah menjadi berbagai obat herbal hingga bahan baku produk perawatan kulit. "Biji-dan daun kelor sedang trend digunakan untuk olahan produk perawatan kulit karena nutrisi yang terkandung di dalamnya. Penelitian ini dilaksanakan pada bulan maret tahun 2020 sampai dengan juni tahun 2020 di Desa Sei Karang Kecamatan Stabat Kabupaten Langkat dengan mengunakan rancangan acak kelompok faktorial dengan 2 taraf perlakuan yakni tanpa MSG (P_0), 2 g/5 liter air (P_1), 5 g/5 liter air (P_2), 7 g/5 liter air (P_3), dan asal stek bagian batang (W_1), asal stek bagian tengah (W_2) dan asal stek bagian ujung (W_3). Hasil penelitian mendapatkan bahwa perlakuan stek bagian tengah (W_1) menunjukkan yang tertinggi dengan nilai 9.67 pada pengamatan jumlah tunas, sedangkan interaksi MSG dan asal stek menunjukkan pengaruh yang nyata terhadap perlakuan munculnya tunas perlakuan tertinggi pada P_1W_1 (2,5 g/5 liter air dan bagian batang) dengan nilai 12.67 hari dan pengamatan panjang akar pada perlakuan P_2W_2 (5 g/5 liter air dan bagian tengah) dengan nilai 10.67.

Kata Kunci : MSG (Monosodium Glutamate), Asal Setek, Tanaman Kelor

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INTRODUCTION

The moringa plant (*Moringa olifera*) is known throughout the world as a nutritious crop and the WHO has introduce moringa as one of the alternative food to overcome nutritional problems (malnutrition). In Africa and Asia, moringa leaves are recommended as a supplement rich in nutrients for lactating mothers and children in infancy. All parts of the moringa plant has nutritional value, nutritious for health and benefits in the field of industry.

Moringa leaves contain vitamin A, vitamin C, vitamin B, calcium, potassium, iron, and protein, in a number of very high that is easily digested and assimilated by the human body. Not only that, moringa was known to contain more than 40 antioxidants in traditional medicine of Africa and India and has been used in traditional medicine to prevent over 300 diseases (Harahap *et al.,* 2020).

The moringa plant is much sought after because it can be processed into various herbal medicine to raw materials of skin care products. "The seeds and leaves of moringa are trends used to processed skin care products because the nutrients contained in it can moisturize the skin (Walida *et al.,* 2020).

Monosodium glutamate was discovered by a scientist nationality Japan in 1907, by doing research-research from food ingredients of tomatoes, cheese and meat of these studies managed to extract acid glutamate (Husada, 2007).

From the research results Harahap *et al.,* (2020) the use of Monosodium glutamate is able to increase the yield of cassava 11-52 tons/Ha from the beginning with urea fertilizer and NPK 10-20 tons/Ha. Based on the description above, the researcher interested to research the moringa plant is rich in benefits or often called the miracle plant, the Need moringa leaves are high in the market is not matched with the pattern of cultivation including seed selection

MATERIALS AND METHOD

Research Time and place of implementation

The research was conducted in the Sei Karang Vilaage Stabat Kabupaten Langkat, North Sumatra Province at a height of ± 27 m above sea level. this research was conducted in March until June 2020.

Research Materials and Tools

The materials used in this research are : Stem Cuttings of moringa, polybag, compost, plastic cap and water .

The tools used in this study are : hoes, nameplate, marker pen, meter, calculator and stationery

Research Experimental Design

This research was conducted using a Randomized block Design (RAK) Factorial with two factors: 1. Factors MSG with 4 levels, namely: P0 = without monosodium glutamate, P1 = 2.5 g/5 liters of water, P2 = 5 g/5 liters of water, P3 = 7.5 g/5 liters of water. 2.Factor the Origin of the cuttings with 3 levels, namely: W1 = The Part Of The Stem, W2 = the Middle part of the, W3 = the tip. The number of treatment combinations 3 x 4 x 3 replications = 36 treatment combinations.

RESULTS AND DISCUSSIONS

The results of the observation of the influence of the MSG and the origin of the cuttings of moringa oleifera showed significant influence on the parameters of the emerging shoots, number of shoots and length of roots.

Appear shoots On the observation of emerged shoots real influence is shown by the treatment of the interaction of Monosodium Glutamate and the origin of the cuttings of moringa while the treatment of Monosodium Glutamate and treatment the origin of the cuttings did not show real influence.

In Table 1. Shown us that the influence of the interaction of Monosodium Glutamate and the origin of stem cuttings of *Moringa oleifera* showed the influence is highest in treatment P1W1 (2.5 g/5 liters of water and part of the stem) with a value of 12.67 days while the lowest are in treatment P0W1 (without MSG and part of the stem) with a value of 15 days.

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Table 1. The influence of the Monosodium Glutamate and the Origin of Stem Cuttings of *Moringa oleifera* in the Nursery to the emergence of buds (Days)

MSG	Origin of Stem Cutting			Average
	Stem	Middle	Tip	
P_0	15.00 c	13.67a	13.00a	13.89
P_1	12.67a	14.00b	14.33b	13.67
P_2	13.33b	14.33b	13.33a	13.67
P_3	14.67b	13.33a	13.67a	13.89
Rataan	13.92	13.83	13.58	

Description : Figures on the same row and column followed by the same letter are not significantly different at the level of 5%.

Table 2. The influence of the MSG and the origin of stem cuttings of *Moringa oleifera* in the nursery on the number of shoots

MSG	Origin of Stem Cutting			Average
	Stem	Middle	Tip	
P_0	6.00	9.33	9.67	8.33
P_1	8.67	10.00	10.67	9.78
P_2	8.33	9.00	10.00	9.11
P_3	8.33	9.33	8.33	8.67
Rataan	7.83b	9.42a	9.67a	

Description : Figures on the same row and column followed by the same letter are not significantly different at the level of 5%.

Table 3. The influence of the Monosodium Glutamate and the Origin of Stem Cuttings of moringa oleifera in the Nursery on root length

MSG	Origin of Stem Cutting			Average
	Stem	Middle	Tip	
P_0	9.67b	8.00c	8.00c	8.56
P_1	9.33b	8.00c	10.33a	9.22
P_2	8.00c	10.67a	8.67c	9.11
P_3	10.00a	8.67c	8.00c	8.89
Rataan	9.25	8.83	8.75	

Description : Figures on the same row and column followed by the same letter are not significantly different at the level of 5%.

Siginifcant influence on the interaction of treatment showed that the MSG with the moringaplant has to help each other for the emergence of shoots. It looks at the treatment P1W1

In Table 2, shown that the influence of origin of stem cuttings of *Moringa oleifera* showed the influence is highest in treatment W3 (the end portion) with a value of 9.67 while the lowest are in treatment W1 (the shaft) with a value of 7.83

In Table 3. Shown that the influence of the interaction of Monosodium Glutamate and the origin of stem cuttings of moringa oleifera showed the influence is highest in treatment P2W2 (5 g/5 liters of water and middle section) with the value of 10.67 while the lowest are in treatment P0W2 (without Monosodium Glutamate and the central part), P0W3 (without Monosodium Glutamate and the tip), P1W2 (2.5 g/5 liters of water) MSG and middle part) and P2W1 (5 g/5 liters of water and part of the stem) with the value of 8.00

CONCLUSIONS

Treatment Monosodium Glutamate does not show a real effect on the number of shoots which is as much as 9.78 buds on the treatment M1 (MSG 2.5 g/5 liters of water) and low as 6.00 buds on the treatment without the Monosodium Glutamate.

Treatment of origin of stem cuttings of moringa plant did not show significant effect on the percentage grows, the emergence of shoots, length of shoots, number of leaves and length of roots of moringa oleifera in the nursery.

The interaction of treatment MSG and the origin of stem cuttings of moringa oleifera showed significant effect on the appearance of the shoots of treatment was highest in P1W1 (2.5 g/5 liters of water and part of the stem) with a value of 12.67 days and the length of the root with the value of 10.67 cm contained in the treatment P2W2 (5 g/5 liters of water and middle section).

REFERENCES

Ervizal. A. 2014. kampung Konservasi Kelor: Upaya Mendukung Gerakan Nasional Sadar Gizi Dan Mengatasi Malnutrisi Di Indonesia. Risalah Kebijakan Pertanian dan Lingkungan 1 (2): 86-91

Harahap, F.S., Roswita, O. and Iman, A., 2020. Supply Liquid Organic Fertilizer NASA and Rice Husk Ash To The Chemical Properties Of The Soil On The Tomato Plant. *International Journal of Science, Technology & Management*, *1*(3), pp.185-189.

Harahap, F.S., Walida, H., Dalimunthe, B.A., Rauf, A., Sidabuke, S.H. and Hasibuan, R., 2020. The Use of Municipal Solid Waste Composition in Degradated Waste Soil Effectiveness in Aras Kabu Village, Beringin Subdistrict, Deli Serdang District. *Agrinula*, *3*(1), pp.19-27.

Harahap, F.S., Walida, H., Rahmaniah, R., Rauf, A., Hasibuan, R. and Nasution, A.P., 2020. Pengaruh Aplikasi Tandan Kosong Kelapa Sawit dan Arang Sekam Padi terhadap beberapa Sifat Kimia Tanah pada Tomat. *Agrotechnology Research Journal*, *4*(1), pp.1-5.

Husada, Wira. 2007. Monosodium Glutamate dalam Makanan. http://www.husadawira.blog.friendster.com.html. Diakses 12 Desember 2019

Krisnadi, (2010), Kelor Super Nutrisi. Pusat Informasi dan Pengembangan Tanaman Kelor Indonesia, Blora.

Manila Bulletin. 2018. Nutritional and medicinal properties of malunggay. Philippine Council for Health Research and Development: Health & Science

Rahmawaty, R., Frastika, S., Rauf, A., Batubara, R. And Harahap, F.S., 2020. Land suitability assessment for Lansium domesticum cultivation on agroforestry land using matching method and geographic information system. *Biodiversitas Journal of Biological Diversity*, *21*(8).

Sutanto. Dwi, T, Morina A. dan Tarigan. N. 2007. Buah Kelor (Moringa Oleifera Lamk.) Tanaman Ajaib Yang Dapat Digunakan Untuk Mengurangi Kadar Ion Logam Dalam Air. Jurnal Gradien 3 (1): 219-221

Syarifah A, Ramadhan,T. dan Yanis, M (2015). Kandungan Nutrisi dan Sifat Fungsional Tanaman Kelor. Buletin Pertanian Perkotaan 5 (2): 35-44

USDA, Agricultural Research Service, National Plant Germplasm System. 2018. Taxon: Moringa Oleifera Lam. National Germplasm Resources Laboratory, Beltsville, Maryland

Walida, H., Harahap, F.S. and Dalimunthe, B.A., 2019. Isolasi Dan Uji Antagonis Mikroorganisme Lokal (Mol) Rebung Bambu Terhadap Cendawan Fusarium sp. *Jurnal Agroplasma*, *6*(2), pp.1-6.

Walida, H., Harahap, F.S., Dalimunthe, B.A., Hasibuan, R., Nasution, A.P. and Sidabukke, S.H., 2020. Pengaruh Pemberian Pupuk Urea Dan Pupuk Kandang Kambing Terhadap Beberapa Sifat Kimia Tanah Dan Hasil Tanaman Sawi Hijau. *Jurnal Tanah dan Sumberdaya Lahan*, *7*(2), pp.283-289.