

BIOCAPS HALALAN TOYYIBAN

Ahmad Rosli Mohd Nor¹, Nor Lizam Rajulan @ Hj Salam², Norfadzilah Mohamad³, Siti Ainon Abdullah³ and Hasnurul Nazimah Hashim⁴

¹ *ACIS, Universiti Teknologi Mara, Cawangan Melaka, MALAYSIA*

² *Landscape Programme, Kolej Komuniti Masjid Tanah, 78300 Melaka, MALAYSIA*

³ *Landscape Programme, Kolej Komuniti Selandar, 77500 Melaka, MALAYSIA*

⁴ *Architecture Technology Programme, Kolej Komuniti Arau, 02600 Perlis, MALAYSIA*

ABSTRACT

Organic control made from a mixture of natural resources is a most popular alternative in terms of green technology and halal for Muslim use. The innovation has use mixture of Azadirata Indica (AI) and dried chilli as an organic control for Capsicum sp. It can help consumer and farmer to ensure chemical-free and halal pest control tools to apply to their food crops, especially chili. An experiment has been conducted to prove the effectiveness of the organic pest control to 300 Capsicum sp tree using Random Block Design (RBD). The population has been divided to three (3) treatments group (R2, R3 and R4) and one (1) control group (R1). R2 used organic based pest control (AI), R3 used chemical based pest control while R4 is a combination of Organic and Chemical based. The population placed openly with the control environment and data were taken every two weeks through observations adapted from Srivastava Technique. Until the last week of observation, R2 still remained with a score of 5 (Best) while the other sample got a lower score. In summary, the use of AI mixture as an organic control in the cultivation of Capsicum sp is very effective for the growth of healthy and disease-free Capsicum sp.

Keyword: pest control, halal, organic

1. INTRODUCTION

Capsicum spp. is the plant most susceptible to disease. The presence of attacks on this species is increasing and affecting the production of its products [1]. Disease control in the cultivation of this species is very important to ensure the production of crops that supply regional needs. As we know, the use of artificial technology and chemicals to complete fruiting plants has a human impact and on the crop itself. A major initiative that is becoming increasingly popular now is the use of organic methods that are free of negative side effects and can be applied to food crops without hesitation. The use of this mixture of Azadirachta Indica leaves (Neem Tree) makes it a pest control product and fertilizer in addition to Capsicum spp. The market price for this mixture is very low and can even be produced on its own, allowing organic farm farmers to produce food sources that are free from chemical pests and halal to handle.

2. METHODOLOGY

2.1. Mixture Processing

The material used is Azadirachta indica (AI) or Neem Tree. This mixture uses AI extract from the leaves to be ground and filtered. Other raw materials used are material A, material B and material C. The total

ratio used is 40% of the main material and 60% of the other mixtures. This mixture also uses additional ingredients to neutralize the odor from the main ingredients and also helps to extend the shelf life of the product to have a suitable maturity. These ingredients are also organic and easy to find; organic detergents, Effective Microorganic fertilizers (EM) and filtered water contain only hydrogen and oxygen. All ingredients were ground and filtered with a 0.1 mm sieve to separate the main ingredient extracts and debris. The liquid extract of the main material is stored in an airtight container controlled by air production within three (3) days. The compounds are mixed in selected ratios to maximize yields to create AI mixtures used for Capsicum spp cultivation. The 8:4 ratio is applied to the main ingredients and additives. To determine the pest control content, the sample was analyzed single element used based on previous theoretical research. Samples are sent to Melaka Biotechnology Corporation in Melaka. This analysis was conducted to determine the ratio of inhibitory macro element content, antiseptic levels and therapeutic efficacy of the product.

2.2 Field test

A test site with 300 Capsicum sp trees using Random Block Design (RCBD) was implemented for 24 months. The test population was divided into three replications (R2, R3 and R4) and one control replication (R1). Each replication was taken 10% of the total population by random sampling. R2 uses AI mixed organic control, R3 uses chemical mixture control while R4 is a mixture of both organic and chemical control. Populations placed openly with a control environment were taken data every two weeks through observations adapted from Srivastava et al, 2017 [2]. Observations of the growth of this Capsicum spp will specifically look at the curls of the leaves caused by liquid sucking insects (whitefly, aphids, thrips, mites) - shoots will be observed and the findings are based on standard calculation [3].

3. RESULTS AND DISCUSSION

This innovation demonstrates the best potential for control and growth of capsicum sp. Each ingredient in itself is organic enough and able to be an organic plant growth control. The results on the macro elements of the product differ when the use of different key and additive ratio ratios. The findings of laboratory analysis prove the potential product in curing and repairing the growth of capsicum spp that has been attacked by disease with l-ascorbic Acid and biological control of insects by interfering with the biological maturation process biologically through the presence of methropene.

While the field study found that r2 (ai) got a lot of results in a longer production period compared to r3 (chemical) and r4 (mixture). Thus, the ai mixture really helps the growth of capsicum spp and fights leaf curling disease. Tree growth is getting better and yields more. The production period can also be extended to four (4) weeks longer.

4. CONCLUSION

In conclusion, the azadiracta indica (AI) compound has been shown to have a positive effect and have a resistance effect on the growth of capsicum spp up to 24 weeks of observation. Organic compounds from plant and animal sources have a positive influence on human health [4]. This research should be extended to other crops such as flowering ornamental plants for longer lasting flowering.

REFERENCES

1. Kenyon, L., Kumar, S. , Tsai, W. S. and Hughes, J.A. (2014) *AiVR*, 90, 297-354.
2. Ruano, N.V., Valle, R.V., Vallejo, L.G.Z, Hernández, N.P. , Ponce, M.V., Adame, V. M.A. and Martínez, E. B. (2018) *FRI*, 106, 870-877.
3. Dangwal, M., Mathad, S.M. and Patil, B.I. Chapter 7 - Novel Strategies for Engineering Resistance to Plant Viral Diseases, *Crop Improvement Through Microbial Biotechnology*, 145-174, (2018)
4. Srivastava, A, M., Mangal, R. K. and Saritha, P. (2017) *Klia*, CP, 100, 177-185.
5. Gutteridge, J.M. and Halliwell, C, B. (2010). *BBRC*, 393, 561-564.



Surat kami : 700-KPK (PRP.UP.1/20/1)
Tarikh : 30 Ogos 2022

YBhg. Profesor Ts Sr Dr Md Yusof Hamid, PMP, AMP
Rektor
Universiti Teknologi MARA
Cawangan Perak



YBhg. Profesor

**PERMOHONAN KELULUSAN MEMUAT NAIK PENERBITAN UiTM CAWANGAN PERAK
MELALUI REPOSITORI INSTITUSI UiTM (IR)**

Perkara di atas adalah dirujuk.

2. Pihak Perpustakaan ingin memohon kelulusan YBhg. Profesor untuk membuat imbasan (*digitize*) dan memuat naik semua jenis penerbitan di bawah UiTM Cawangan Perak melalui Repositori Institusi UiTM, PTAR.
3. Tujuan permohonan ini adalah bagi membolehkan akses yang lebih meluas oleh pengguna Perpustakaan terhadap semua bahan penerbitan UiTM melalui laman Web PTAR UiTM Cawangan Perak.

Kelulusan daripada pihak YBhg. Profesor dalam perkara ini amat dihargai.

Sekian, terima kasih.

“WAWASAN KEMAKMURAN BERSAMA 2030”

“BERKHIDMAT UNTUK NEGARA”

Yang benar