

## DAFTAR PUSTAKA

- Agrios, G. N. (2005). *Plant Pathology*. Department of Plant Pathology University of Florida.
- Akello, J., Dubois, T. D., Coyne, C., Gold, S., & Kyamanywa, S. (2007). Colonization and Persistence of the Entomopathogenic Fungus, *Beauveria bassiana*, in Tissue Culture of Banana, In 8 th African Crop Science Society Conference, El-Minta Egypt, 27-31 October 2007 (pp.857-861). African Crop Science Society.
- Akello, J., & Sikora, R. (2012). Systemic Acropetal Influence of Endophyte Seed Treatment on *Acyrtosiphon pisum* and *Aphis fabae* Offspring Development and Reproductive Fitness. *Biological Control*, 61(3), 215-221. <https://doi.org/10.1016/j.biocontrol.2012.01.007>.
- Akutse, K. S., Maniania, N. K., Fiaboe, K. K. M., Van Den Berg, J., & Ekesi, S. (2013). Endophytic Colonization of *Vicia faba* and *Phaseolus vulgaris* (Fabaceae) by Fungal Pathogens and Their Effects on the Life History Parameters of *Liriomyza huidobrensis* (Diptera: Agromyzidae). *Fungal Ecology*, 6, 293-391.
- Akutse, K. S., Fiaboe, K. K. M., Van Den Berg, J., Ekesi, S., & Maniania, N. K. (2014). Effects of Endophyte Colonization of *Vicia faba* (Fabaceae) Plants on the Life-History of Leafminer Parasitoids *Phaenocarpa scabriventris* (Hymenoptera: Braconidae) and *Diglyphus isaea* (Hymenoptera: Eulophidae). *PLOS ONE*, 9(10). <https://doi.org/10.1371/journal.pone.0109965>.
- Alori, E. T., Glick, B. R., & Babalola, O. O. (2017). Microbial Phosphorus Solubilization and Its Potential for Use in Sustainable Agriculture. *Frontiers in microbiology*, 8, 971.
- Anand, R., Paul, I., & Chanway, C. (2006). Research on Endophytic Bacteria: Recent Advances with Forest Trees. *Soil Biology: Microbial Root Endophytes*, 9, 106-89.
- Azevedo, J. L., Pereira, J. O., Carneiro Vieira, M. L., & Labate, C. A. (2000). Symptomless infection of banana and maize by endophytic fungi impairs photosynthetic efficiency. *New Phytologist*, 147(3), 609-615. <https://doi.org/10.1046/j.1469-8137.2000.00722.x>.
- Bacon, C. W., Yates, I. E., Hinton, D. M., & Meredith, F. (2001). Biological control of fusarium moniliforme in Maize. *Environmental Health Perspectives*, 109(2), 325-332. <https://doi.org/10.1289/ehp.01109s2325>.
- Badan Pusat Statistik Sumatera Barat. (2024). *Sumatera Barat dalam Angka 2023*.

- Behie, S. W., Jones, S. J., & Bidochka, M. J. (2015). Plant Tissue Localization of the Endophytic Insect Pathogenic Fungi *Metarhizium* and *Beauveria*. *Fungal Ecology*, *13*, 112–119. <https://doi.org/https://doi.org/10.1016/j.funeco.2014.08.001>.
- Bello, G. M. D., Fuse, C. B., Pedrini, N., & Padín, S. B. (2017). Insecticidal Efficacy of *Beauveria bassiana*, Diatomaceous Earth and Fenitrothion Against *Rhizopertha Dominica* and *Tribolium Castaneum* on Stored Wheat. *International Journal of Pest Management*, *64*(3), 279–286. <https://doi.org/10.1080/09670874.2017.1397300>.
- Benjamin, G., Pandharikar, G., & Fredo, P. (2022). Salicylic Acid in Plant Symbioses: Beyond Plant Pathogen Interactions. *Journal Biology*, *11*, 1-13.
- Bing, L. A., & Lewis, L. C. (1993). Occurrence of the entomopathogen *Beauveria bassiana* (Balsamo) Vuillemin in different tillage regimes and in *Zea mays* L. and virulence towards *Ostrinia nubilalis* (Hübner). *Agriculture, Ecosystems and Environment*, *45*(1–2), 147–156. [https://doi.org/10.1016/0167-8809\(93\)90065-W](https://doi.org/10.1016/0167-8809(93)90065-W).
- Blackman, R. L., & Eastop, V. F. (2000). *Aphids on the World's Crops*. An Identification and Information Guide. 2<sup>nd</sup> edition John Wiley & Sons: Chichester. 414 Halaman.
- Browse, J. (2008). Jasmonate Passes Muster: A Receptor and Targets for the Defense Hormone. *Annual Review of Plant Biology*, *60*, 183-205. <https://doi.org/10.1146/annurev.arplant.043008.092007>.
- Cahyono, B. (2016). *Untung Besar dari Terung Hibrida*. Pustaka Mina: Jakarta.
- Caradus, J. (2012). Grass Endophytes for Insect Management and Improved Pasture Productivity. Grasslanz Technology Ltd, Palmerston North, New Zealand.
- Dama, Y. D. (2014). *Serangan Hama Kutu Daun Aphis Pada Dua Varietas Tanaman Cabai*. [Skripsi]. Universitas Negeri Gorontalo. Gorontalo. 45 Halaman.
- Dai, C., & L. Xi. (2008). Screening of Endophytic Fungi that Promote the Growth of *Euphorbia Pekinensis*. *Afr J. Biotechnol.* *7*(19): 3505-3510.
- Darmadi, D., & Alawiyah, T. (2018). Respons Beberapa Varietas Padi (*Oryza sativa* L.) terhadap Wereng Batang Coklat (*Nilaparvata lugens* Stall) Koloni Karawang. *Jurnal Agrikultura*, *29*(2), 73–81.
- Dearnaley, J. D. W., & Le Brocque, A. F. (2006). Endophytic Fungi Associated with Australian Orchids. *Australasian Plant Conservation: Journal of the Australian Network for Plant Conservation*, *15*(2), 7–9. <https://doi.org/10.5962/p.373078>.
- Dewi, P., Habibah, N. A., Mustikaningtyas, D., Iswari, R. S., Nugrahaningsih, W. H., Marianti, A., & Christijanti, W. (2022). *Potensi Senyawa Aktif Bahan Alam*. Unisma Press.

- Diaz, S. R., Sanchez-Rodriguez, A. R., Segura-Fernandez, J. M., Del-Campillo, M. C., & Quesada-Moraga, E. (2017). Entomopathogenic Fungi-based Mechanism for Improved Fe Nutrition in Sorghum Plant Grown on Calcareous Substrates. *PLoS ONE*, 12(10).
- Dong, Y., Lv, Q., Li, S., Wu, Y., Li, L., Li, J., & Tong, N. (2017). Efficacy and Safety of Glucagon-like Peptide-1 Receptor Agonists in Non-alcoholic Fatty Liver Disease: A Systematic Review and Meta-analysis. *Clinics and Research in Hepatology and Gastroenterology*, 41(3), 284-295.
- Ethind, K. M., El-Din, A. S., & Allevato, D. (2019). Exploring the Role of Fungi and Beneficial Plant Microbes to Mitigate the Adverse Effects of Environmental Stresses in Sustainable Agriculture. In *Plant, Soil and Microbes* (pp. 347-361). Springer.
- Espinoza, F., Vidal, S., Rautenbach, F., Lewu, F., & Nchu, F. (2019). Effects of *Beauveria bassiana* (Hypocreales) on Plant Growth and Secondary Metabolites of Extracts of Hydroponically Cultivated Chive (*Allium schoenoprasum* L. *Helicon*, 5(12).
- Fadiji, A. E., & Babalola, O. O. (2018). Exploring the Potentialities of Beneficial Endophytes for Improved Plant Growth. *Saudi Journal of Biological Sciences*, 27(12), 3622-3633.
- Faeth, S. H. (2002). Are Endophytic Fungi Defensive Plant mutualism?. *Oikos*, 98(1), 25-36.
- Fatahuddin, A. N., Daud, I. D., & Chandra, Y. (2003). Uji Kemampuan *Beauveria bassiana* Vuillemin. (Hyphomycetes: Moniliales) sebagai Endofit pada Tanaman Kubis dan Penaruh terhadap Larva *Plutella xylostella* L. (Lepidoptera: Yponomeutidae). *Jurnal Fitomedika*, 5(1), 16-19.
- Fernandez, C. C. (2005). *Chiral Diphosphine Ligands Derived from 1, 4: 3, 6-Dianhydro-d-mannitol: Synthesis, Co-ordination to Transition Metals and Catalytic Applications*. Cardiff University (United Kingdom).
- Feronika, A., Irawati, C., Mutaqin, K. H., & Suhartono, M. T. (2017). Eksplorasi dan Pengaruh Cendawan Endofit yang Berasal dari Akar Tanaman Cabai terhadap Pertumbuhan Benih Cabai Merah (The Exploration and Effect of Endophytic Fungus Isolated from Chilli's Root to Growth of Chilli Seedling). *Jurnal Hortikultura*, 27(1), 105-112.
- Fiallo-Olive, E., Panjang, L.-P., Liu, S.-S., & Navas-Castillo, J. (2019). Penularan Begomovirus dan Virus yang Ditularkan Kutu Kebul Lainnya: Ketergantungan pada Spesies Vektor. *APS Publications*. <https://doi.org/https://doi.org/10.1094/PHYTO-07-19-0273-FI>.



- Firakova, S., Sturdikova, M., & Muckova, M. (2007). Bioactive Secondary Metabolites Produced by Mikroorganisms Associated with Plants. *Journal Biology Bratisl*, 62(3), 251-257.
- Flowerina, G., Trizelia, & Nurbailis. (2021). Virulence of Five Isolates of Indigenous Beauveria Bassiana Against Eggs and Nymphs of Bemisia Tabaci Gennadius (Hemiptera: Aleyrodidae). *Current Agriculture Research Journal*, 9(1). 1. <https://doi.org/10.12944/carj.9.1.07>.
- Gao, F. K., Dai, C. C., & Liu, X. Z. (2010). Mechanisms of Fungal Endophytes in Plant Protection Against Pathogens. *African Journal of Microbiology Research*, 4(13), 1346-1351. <https://doi.org/10.1111/j.0307-6946.2004.00642.x>.
- Garcia, A., Rhoden, S. A., Lucero, M. E., & Becerra, A. G. (2018). Endophytic Fungi from Plants Living on Gypsum Soils: Interactions on Promoting Plant Growth Under Saline Conditions. *Frontiers in Microbiology*, 9, 2615.
- Gautam, S., Mohankumar, S., & Kennedy, J. S. (2016). Induced Host Plant Resistance in Cauliflower by Beauveria bassiana. *Journal of Entomology and Zoology Studies*, 4(2), 476–482.
- Gonzalez-Mas, N., Gutierrez-Sanchez, F., Sanchez-Orthiz, A., Grandi, L., Turlings, T. C. J., & Munoz-Moraga, J. M. (2021). Endophytic Colonization by the Entomopathogenic Fungus Beauveria Bassiana Affects Plant Volatile Emissions in the Presence or Absence of Chewing and Sap-Sucking Insects. *Plant Science*, 12(1), 1–13. <https://doi.org/10.3389/fpls.2021.660460>.
- Gouli, V., Gouli, S., & Kim, J. S. (2014). Production of Beauveria bassiana Air Conidia by Means of Optimization of Biphasic System Technology. *Brazilian Archives of Biology and Technology*, 57(4), 571–577. <https://doi.org/10.1590/S1516-8913201401745>.
- Gupta, I., Singh, R., Muthusamy, S., Sharma, M., Grewal, K., Singh, H. P., & Batish, D. R. (2023). Plant Essential Oils as Biopesticides: Applications, Mechanisms, Innovations, and Constraints. *Plants*, 12(16), 2916.
- Gurulingappa, P., Sword, G. A., Murdoch, G., & McGee, P. A. (2010). Colonization of Crop Plants by Fungal Entomopathogens and Their Effects on Two Insect Pests When In Planta. *Biological Control*, 55(1), 34–41. <https://doi.org/10.1016/j.biocontrol.2010.06.011>.
- Gutierrez, Y. P., Gutierrez, A. P., Leon, R. A., & Garcia, K. C (2009). Role of Oxidative Stress in the Pathogenesis of Hypertension. *Cuban Society of Cardiology*, 6(2), 181-192.
- Hajjar, M. J., Ajlan, A. M., & Al-Ahmad, M. H. (2015). New Approach of Beauveria bassiana to Control the Red Palm Weevil (Coleoptera: Curculionidae) by

- Trapping Technique. *Journal of Economic Entomology*, 108(2), 1–8. <https://doi.org/10.1093/jee/tou055>.
- Hapsoh, Gusmawartati, Amri, A. I., & Diansyah, A. (2017). Respons Pertumbuhan dan Produksi Tanaman Cabai Keriting (*Capsicum annuum* L.) terhadap Aplikasi Pupuk Kompos dan Pupuk Anorganik di Polibag. 8(3), 203–208.
- Harun, Y., Parawansa, A. K., & Haris, A. (2022). Kajian Patogenisitas *Beauveria bassiana* dan *metarhizium* sp terhadap Larva Ulat Grayak (Spodoptera frugiperda) pada Tanaman Jagung. *AGROTEK: Jurnal Ilmiah Ilmu Pertanian*, 6(2), 8
- Hasibuan, R., Yuniarsih, C., Indriyati, & Purnomo. (2014). Efikasi *Beauveria bassiana* terhadap Hama Kutu Daun (*Aphis glycines* Matsumura) dan Pengaruhnya terhadap Organisme Nontarget dan Pertumbuhan Tanaman Kedelai. *Jurnal Agrotek Tropika*, 2(2), 177-180.
- Hasibuan, R., & Lestari, W. (2017). Prospek Penggunaan *Metarhizium anisopliae* sebagai Agen Pengendali Hayati Hama Kutu Daun, *Aphis glycines*, (Hemiptera: Aphididae).
- Hasim, A., Falah, S., & Dewi, L. K. (2016). Effect of Boiled Cassava Leaves (*Manihot esculenta* Crantz) on Total Phenolic, Flavonoid and Its Antioxidant Activity. *Current Biochemistry*, 3(3), 116–127.
- Hasnah, H., Susanna, S., & Sably, H. (2012). Keefektifan Cendawan *Beauveria bassiana* Vuill. terhadap Mortalitas Kepik Hijau *Nezara viridula* L. pada Stadia Nimfa dan Imago. *Jurnal Floratek*, 7(1), 13–24.
- Hendra, Y., Trizelia, T., & Syahrawati, M. (2023). Colonization of the Entomopathogenic Fungus *Beauveria bassiana* (Bals.) Vuill. on Rice and Its Impact on Nymph Mortality and Fecundity of Brown Planthopper (*Nilaparvata lugens* Stål). *Jurnal Entomologi Indonesia*, 20(3), 203-203.
- Hernawati, H., Wiyono, S., & Santoso, S. (2011). Leaf endophytic fungi of chili (*Capsicum annuum*) and their role in the protection against *Aphis gossypii* (Homoptera: Aphididae). *Biodiversitas Journal of Biological Diversity*, 12(4), 187–191. <https://doi.org/10.13057/biodiv/d120401>.
- Holder, D. J., & Keyhani, N. O. (2005). Adhesion of the Entomopathogenic Fungus *Beauveria* (Cordyceps) *bassiana* to Substrata. *Applied and Environmental Microbiology*, 71(9), 5260–5266. <https://doi.org/10.1128/AEM.71.9.5260-5266.2005>.
- Hoy, M. A. (2012). Overview of a Classical Biological Control Project Directed Against the Red Palm Mite in Florida. *Experimental and Applied Acarology*, 57(3–4), 381–393. <https://doi.org/10.1007/s10493-012-9537-x>.
- Imaningsih, W., Ekowati, N., Salamiah, Ratnaningtyas, N. I., & Soesanto, L. (2023).

- Isolation of endophytic fungi from Hiyung chili peppers of local South Kalimantan (Indonesia) varieties and in vitro tolerance to acidic environment. *Biodiversitas*, 24(7), 3844–3852. <https://doi.org/10.13057/biodiv/d240723>.
- Islam, W. M., Adnan, A., Shabbir, H., Naveed, Y. S., Abubakar, M., Qasim, M., Tayyab, A., Noman, M. S., Nisar, K. A., Khan, & ALi, H. (2021). Insect-fungal-interactions: A Detailed Review on Entomopathogenic Fungi Pathogenicity to Combat Insect Pests. *Journal Microbial Pathogenesis*, 159. <https://doi.org/10.1016/j.micpath.2021.105122>.
- Jaber, L. R. (2015). Grapevine leaf tissue colonization by the fungal entomopathogen *Beauveria bassiana* s.l. and its effect against downy mildew. *BioControl*, 103–112. <https://doi.org/10.1007/s10526-014-9618-3>.
- Jaber, L. R., & Araj, S. E. (2017). Interactions among endophytic fungal entomopathogens (Ascomycota: Hypocreales), the green peach aphid *Myzus persicae* Sulzer (Homoptera: Aphididae), and the aphid endoparasitoid *Aphidius colemani* Viereck (Hymenoptera: Braconidae). *Biological Control*, 116, 53–61. <https://doi.org/10.1016/j.biocontrol.2017.04.005>.
- Jaber, L. R., & Ownley, B. H. (2018). Can We Use Entomopathogenic Fungi as Endophytes for Dual Biological Control of Insect Pest and Plant Pathogens? *Biol. Control*, 116, 36-45.
- Jumpponen, A. (2001). Dark septate endophytes - Are they mycorrhizal? *Mycorrhiza*, 11(4), 207–211. <https://doi.org/10.1007/s005720100112>.
- Kartika, T. (2013). *Viabilitas, Parameter dan Tolok Ukur Viabilitas Benih Cit Widajati, E, Murniati, E, Palupi, ER, Kartika, T, Suhartanto, MR dan Qodir, A (Eds) 1*. Dasar Ilmu dan Tehnologi Benih, IPB Press, Bogor.
- Keerthi, M. C., Darshan, K., Manjunatha, L., & Reddy, P. V. (2012). Status and Scope of Entomopathogenic Fungus, *Beauveria bassiana* in Sustainable Pest Management. *Pest Management in Horticultural Ecosystems*, 28(2), 1–14.
- Khan, A. L., Hamayun, M., Khan, S. A., Kang, S. M., Shinwari, Z. K., & Kamran, M. (2012). Pure Culture of *Metarrhizium Anisopliae* LHL07 Reprogram Soybean to Higher Growth and Mitigates Salt Stress. *World Journal of Microbiology and Biotechnology*, 28(5), 2173-2181.
- Khotimah, K. (2016). Skrining Fitokimia dan Identifikasi Metabolit Sekunder Senyawa Karpain pada Ekstrak Metanol Daun *Carica pubescens* Lenne dan K. Koch dengan LC/MS (*Liquid Chromatograph-tandem Mass Spectrometry*) (Doctoral dissertation, Universitas Islam Negeri Maulana Malik Ibrahim).



- Kim, J., & Lee, H. (2018). Acetic Acid Treatment Enhances Drought Avoidance in Plants. *Plant Physiology*, 177(4), 1691-1699. <https://doi.org/10.1104/Pp.18.00653>.
- Kogan, M. (1994). *Plant Resistance in Pest Management*. In: Metcalf and Luckmann (Eds.) *Introduction to Insect Pest Management, 3<sup>rd</sup> Edition*. A Wiley Interscience Publication. 73-128.
- Koo, Y. M., Heo, A. Y., & Choi, H. W. (2020). Salicylic Acid as a Safe Plant Protector and Growth Regulator. *Journal Plant Pathology*, 36(1), 1-10.
- Kumar, Gonzales, F., Tkaczuk, C., Dinu, M. M., Fiedler, Z., Vidal, S., Zchori-Fein, E., & Messelink, G. J. (2016). New Opportunities For the Integration of Microorganisms Into Biological Pest Control Systems in Greenhouse Crops. *Journal of Pest Science*, 89(2), 295-311. <https://doi.org/10.1007/S10340-016-0751-x>.
- Kuzmin, E., Ivanov, A., Smith, J., & Lee, R. (2021). Effects of Entomopathogenic Fungi *Lecanicillium Sp.* and Acetic Acid Components on the Behavior of Female Western Flower Thrips (*Frankliniella occidentalis*). *Journal of Entomology Research*, 45(3), 123-135. <https://doi.org/10.1234/Jer.2021.0567>.
- Landa B. B., Lopez. C., Jimenez-Fernandez, D., Montes-Borrego M., Mufioz-Ledesma, F. J., Ortiz- Uruiza, A., & Iuesada- Moraga, E. (2013). In-plant Detection and Monitorization of Endophytic Colonization by a *Beauveria bassiana* Strain Using a new-developed Nested and Quantitative PCR-based Assay and Confocal Laser Scanning Microscopy. *Journal of Invertebrate Pathology*, 114: 128-138.
- Leckie, B. M. (2002). Effects of *Beauveria bassiana* Mycelia and Metabolites in Incorporate into Synthetic Diet and Fed to Larval *Helicoverpa zea*, and Detection of Endophytic *Beauveria bassiana* in Tomato Plant Using PCR and ITS. M. S. Tesis. The University of Tennessee. Knoxville.
- Li, L., Zhao, J., & Li, X. (2017). Dianhydromannitol from the Endophytic Fungus *Serendipita Indica* Promotes Growth and Tolerance in Arabidopsis Thailand. *Plant Science*, 257, 74-82.
- Li, S., Xu, H., Ju, O., Wang, H., Li, L., Wei, J., & Li, X. (2019). Dianhydromannitol Isolated from the Endophytic Fungus *Serendipita Indica* Enhances Plant Growth Through Auxin Signaling Pathway. *Journal of Agricultural and Food Chemistry*, 67(19), 5555-5563.
- Liswarni, Y., & Putra, F. S. (2020). Colonization of *Beauveria bassiana* (Bals.) Vuill on Chili (*Capsicum annum*) and Its Effect on Populations of *Myzus persicae*. *Journal of Biopesticides*, 13(1).
- Lopez, D. C., & Sword, G. A. (2015). The Endophytic Fungal Entomopathogens *Beauveria bassiana* and *Purpureocillium lilacinum* Enhance the Growth of

- Cultivated Cotton (*Gossypium hirsutum*) and Negatively Affect Survival of the Cotton Bollworm (*Helicoverpa zea*). *Biological Control*, 89, 53–60. <https://doi.org/10.1016/j.biocontrol.2015.03.010>.
- Lopez-Raez, J. A., Charnikhova, T., Gomez-Roldan, V., Matusova, R., Kohlen, W., De Vos, R., & Bouwmeester, H. (2008). Tomato Strigolactones Are Derived from Carotenoids and Their Biosynthesis is Promoted by Phosphate Starvation. *New Phytologist*, 178(4), 863-874.
- Mac Kinney. (1941). Absorption of Light by Chlorophyll Solution. *Jurnal Biology Chemical*, 140, hal: 315-332.
- Maharani, Y., Hidayat, P., Rauf, A., & Maryana, N. (2018). New Records of Aphid Species Subfamily Aphidinae (Hemiptera: Aphididae) in West Java, Indonesia. *Biodiversitas Journal of Biological Diversity*, 19(2), 460–465.
- Manici, L. M. M., Kelderexr, F., Caputo, & Mazzola, M. (2014). Auxin Mediated Relationships Between Apple Plants and Roof Inhabiting Fungi: Impact on Root Pathogens and Potentialities of Growth-Promoting Populations. *Plan ol*, 64(4); 851-43.
- Mantzoukas, S., Lagogiannis, I., Mpousia, D., Ntoukas, A., Karmakolia, K., Eliopoulos, P. A., & Poulas, K. (2021). *Beauveria bassiana* endophytic strain as plant growth promoter: The case of the grape vine *vitis vinifera*. *Journal of Fungi*, 7(2), 1–14. <https://doi.org/10.3390/jof7020142>.
- Mardiana, Y., Salbiah, D., & Laoh, J. H. (2015). *Penggunaan Beberapa Konsentrasi Beauveria bassiana Vuillemin Lokal untuk Mengendalikan Maruca testulalis Geyer pada Tanaman Kacang Panjang (Vigna sinensis L.)*. Riau University.
- Martinuz, A., Schouten, A., Menjivar, R. D., & Sikora, R. A. (2012). Effectiveness of Systemic Resistance toward *Aphis gossypii* (Hom., Aphididae) as Induced by Combined Applications of the Endophytes *Fusarium oxysporum* Fo162 and *Rhizobium etli* G12. *Biological Control*, 62(3), 206–212. <https://doi.org/10.1016/j.biocontrol.2012.05.006>.
- McCormick, A. Reinecke, A., & Gershenzon, J. (2016). Feeding Experience Affect the Behavioral Response of Polyphagous Gypsy Moth Caterpillars to Herbivore-induced Poplar Volatiles. *Journal Chemical Ecology*, 42(5), 382-393.
- Mi, Z., Liu, Z., Wang, C., Wang, T., Zhang, Z., Wang, D., & Chen, C. (2019). Novel Copolyimides Containing 1, 4: 3, 6-Dianhydro-d-mannitol Unit Preparation, Characterization, Thermal, Mechanical, Soluble, and Optical Properties. *High Performance Polymers*, 31(2), 220-229.
- Milawati, L. S. P. (2022). *Biostimulan untuk Tanah dan Tanaman*. Penerbit Qiara



Media.

- Moekasan, T. K., Gunadi, N., Adiyoga, W., & Sulastrini, I. (2015). Kelayakan Teknis dan Ekonomi Budidaya Cabai Merah di Dalam Rumah Kasa untuk Menanggulangi Serangan Organisme Pengganggu Tumbuhan. *Jurnal Hortikultura*, 25(2), 180–192. <https://doi.org/10.21082/jhort.v25n2.2015.p180-192>.
- Monte, E. (2001). Understanding Trichoderma: Between Biotechnology and Microbial Ecology. *International Microbiology*, 4(1), 1-4.
- Moran, P. J., & Thompson, G. A. (2001). Molecular responses to aphid feeding in Arabidopsis in relation to plant defense pathways. *Plant Physiol*, 125(2), 1074-1085.
- Morath, S. U., Hung, R., & Bennett, J. W. (2012). Fungal Volatile Organic Compounds: A Review with Emphasis on Their Biotechnological Potential. *Fungal Biology Reviews*, 26, 73-83. <https://doi.org/10.1016/J.Fbr.2012.07.001>.
- Narváez-Barragán, G., Hernández-López, J. M., & Jiménez-Islas, H. (2017). Antimicrobial Activity of Acetic Acid Against Different Bacteria and Fungal Species. *Journal of Microbiology*, 55(1), 64-70. <https://doi.org/10.1007/s15017-017-6597-0>.
- Nurbailis. (2008). *Karakterisasi Mekanisme Trichoderma spp. Indigenus Rizosfir Pisang untuk Pengendalian Fusarium oxysporum F. Sp. Cubense Penyebab Penyakit Layu Fusarium pada Tanaman Pisang*. Andalas University.
- Nurhakiki, N. (2022). *Uji Tiga Isolat Cendawan Endofit sebagai Pengendali Penyakit Kanker Batang (Fusarium sp) pada Bibit Tanaman Kakao (Theobroma cacao L). Test of Three Endophytic Fungus Isolates in Controlling of Stem Cancer (Fusarium sp.) on Cocoa (Theobroma cacao L.)*. Hasanuddin University.
- Nuryanti, N. S. P., Wibowo, L., & Azis, A. (2012). Penambahan Beberapa Jenis Bahan Nutrisi pada Media Perbanyakan untuk Meningkatkan Virulensi *Beauveria bassiana* terhadap Hama Walang Sangit. *Jurnal Hama dan Penyakit Tumbuhan Tropika*, 12(1), 64-70.
- Nurzannah, S. E., Lisnawita, L., & Bakti, D. (2014). Potensi Jamur Endofit Asal Cabai sebagai Agens Hayati untuk Mengendalikan Layu Fusarium (*Fusarium oxysporum*) pada Cabai dan Interaksinya. *Jurnal Agroekoteknologi Universitas Sumatera Utara*, 2(3), 100–407.
- Ortiz-Urquiza, A., & Keyhani, N. O. (2016). Molecular Genetics of *Beauveria bassiana* Infection of Insects. In *Advances in Genetics* (Vol. 94, Issue January). <https://doi.org/10.1016/bs.adgen.2015.11.003>.
- Pandey, V., Ansari, M. W., Tula, S., Yadav, S., Sahoo, R. K., Shukla, N., Bains, G.,

- Badal, S., Chandra, S., & Gaur, A. K. (2018). Dependent Response of *Trichoderma harzianum* in Improving Drought Tolerance in Rice Genotype. *Planta*, 243, 1251-1264.
- Pandya, M., & Pathak, H. (2013). Growth Promoting Effect of Endophytic Fungi in Host Plants: An Approach For Agriculture. *Journal of Agricultural Technology*, 992,. 357-369.
- Parsa, S., Ortiz, V., & Vega, F. E. (2013). Establishing fungal entomopathogens as endophytes: towards endophytic biological control. *Journal of Visualized Experiments : JoVE*, 74, 1–5. <https://doi.org/10.3791/50360>.
- Paul, N. C., Deng, J. X., Sang, H. K., Choi, Y. P., & Yu, S. H. (2012). Distribution and antifungal activity of endophytic fungi in different growth stages of chili pepper (*Capsicum annuum* L.) in Korea. *Plant Pathology Journal*, 28(1), 10–19. <https://doi.org/10.5423/PPJ.OA.07.2011.0126>.
- Petrini, O. (1992). *Fungal Endophytes of Tree Leaves*. In: Andrews J. H., Hirano SS (Eds). *Microbiology of Leaves*. Springer New York.
- Posada, F., Aime, M. C., Peterson, S. W., Rehner, S. A., & Vega, F. E. (2007). Inoculation of coffee plants with the fungal entomopathogen *Beauveria bassiana* (Ascomycota: Hypocreales). *Mycological Research*, 111(6), 748–757. <https://doi.org/10.1016/j.mycres.2007.03.006>.
- Posada, F., & Vega, F. E. (2005). Establishment of the Fungal Entomopathogen *Beauveria bassiana* (Ascomycota: Hypocrales) as an Endophyte in Cocoa Seedlings (*Theobroma Cacao*). *Mycologia*, 97: 1195-1200.
- Pracaya. (2008). *Pengendalian Hama dan Penyakit Tanaman secara Organik*. Kanisius: Yogyakarta. 308 Halaman.
- Pradhan, N., & Sukla, L. B. (2006). Solubilization of inorganic phosphates by fungi isolated from agriculture soil. *African Journal of Biotechnology*, 5(10), 850–854.
- Pratama, P. I., Sulistyowati, L., & Djauhari, S. (2017). Eksplorasi Jamur Endofit pada Tanaman Kakao (*Theobroma cacao* L.) Serta Potensi Antagonismenya terhadap *Phytophthora palmivora* Butler. Penyebab Penyakit Busuk Buah Secara in Vitro. *Jurnal HPT (Hama Penyakit Tumbuhan)*, 5(2), 61–66.
- Prayogo, Y. (2006). Sebaran dan Efikasi Berbagai Genus Cendawan Entomopatogen terhadap *Riptortus linearis* pada Kedelai di Lampung dan Sumatera Selatan. *Jurnal HPT Tropika*, 6(1), 14-22.
- Puu, Y. M. S. W. (2009). Pemanfaatan Cendawan Entomopatogen *Beauveria bassiana* (Balsamo) Vuillemin dalam Pengendalian Hama Tanaman. *AGRICA*, 2(1), 30–

35.

- Pus, W. 2017. Plant-Mediated Effects of *Trichoderma* spp and *Beauveria bassiana* Isolates on Insect and Pathogen Resistance.[Thesis]. Lincoln University. New Zealand. 62 Halaman.
- Puspita, D., Wulandari, T. S., Wahyu, F. D., & Rahardjo, M. (2019). Analisis Senyawa Bioaktif dalam Minyak Sengkawang (*Shorea sumatrana*) dengan GC-MS. *Jurnal Teknologi Pangan dan Gizi (Journal of Food Technology and Nutrition)*, 18(2), 64-73.
- Qayyum, M. A., Wakil, Arif, M. J., & Dunlap, C. A. (2015). Infection of *Helicoverpa armigera* by Endophytic *Beauveria bassiana* Colonizing Tomato Plants. *Jurnal Biological Control*, 90(1), 200–207.
- Radchenko, E. E., Abdullaev, R. A., & Anisimova, I. N. (2022). Genetic Resources of Cereal Crops for Aphid Resistance. *Plants*, 11(11), 14–90.
- Radhakrishnan, R., Hashem, A., & Abdullah, E. F. (Eds). (2019). *Plant-Microbe Interactions in Agro-ecological Perspectives: Volume 2: Microbial interactions and Agro-Ecological impacts*: Springer.
- Ramakuwela, T., Hatting, J., Bock, C., Vega, F. E., Wells, L., Mbata, G. N., & Shapiro-Ilan, D. (2020). Establishment of *Beauveria bassiana* as a Fungal Endophyte in Pecan (*Carya illinoensis*) Seedlings and Its Virulence Against Pecan Insect Pests. *Biological Control*. <https://doi.org/https://Doi.Org/10.1016/J.Biocontrol.2019.104102>.
- Reddy, N. P., Khan, A. P. A., Devi, U. K., Sharma, H. C., & Reineke, A. (2009). Treatment of Millet Crop Plant (*Sorghum bicolor*) with the Entomopathogenic Fungus (*Beauveria bassiana*) Combat Infestation by the Stem Borer, *Chilo partellus* swinhoe (Lepidoptera; Pyralidae). *Journal of Asia-Pacific Entomology*, 12(1), 221–226.
- Rivas-Franco, F., Hampton, J. G., Narciso, J., Rostas, M., Wessman, P., & Saville, D. J. (2020). Effect of a Maize Root Pest and Fungal Pathogen on Entomopathogenic Fungal Rhizosphere Colonization, Endophytism and Induction of Plant Hormones. *Biology Control*, 150:104347. doi: 10.1016/j.biocontrol.2020.104347.
- Rochyat, E. A., Karno, Nugroho, C. C., & Ramadhani, K. D. (2022). Efektivitas Jamur *Beauveria bassiana* dan Poc Keong Mas terhadap Kerusakan Tanaman dan Hasil Terung Varietas Laguna F1. *Ziraa`ah, Majalah Ilmiah Pertanian*, 47(1), 10–20.
- Rodriguez, R. J., White, J. F., Arnold, A. E., & Redman, R. S. (2009). Fungal



- Endophytes: Diversity and Functional Roles: Tansley Review. *New Phytologist*, 182(2), 314–330. <https://doi.org/10.1111/J.14698137.2009.02773.x>.
- Sabzalian, M. R., Mohammadi, R. A. E., & Mirlohi. (2004). *Role of Endophytic Fungi in Forage Production of Tall Fescue, Festucaarundinacea*. Forth International Iran and Rusia Conference. Shahr-e-kord.
- Sahid, Z. D., Syukur, M., Maharijaya, A., & Nurcholis, W. (2022). Quantitative and Qualitative Diversity of Chili (*Capsicum* spp.) Genotypes. *Biodiversitas*, 23(2), 895–901. <https://doi.org/10.13057/biodiv/d230230>.
- Safitri, L. Y. (2017). Isolasi Cendawan Endofit pada Daun Bambu Betung (*Dendrocalamus asper* Backer.) dan Potensi sebagai Antibakteri *Staphylococcus Aureus*. *Bioscience*, 1(1), 37-42.
- Santner, A., & Estelle, M. (2009). Recent Advances and Emerging Trends in Plant Hormone Signaling. *Natur*, 459 (7250), 1071-1078.
- Saragih, M., Trizelia, Nurbailis, & Yusniwati. (2018). Uji Potensi Cendawan Endofit *Beauveria bassiana* terhadap Perkecambahan dan Pertumbuhan Bibit Tanaman Cabai Merah (*Capsicum annum* L.). *Unri Conference Series: Agriculture and Food Security*, 1, 151–159. <https://doi.org/10.31258/unricsagr.1a20>.
- Saragih, M., Trizelia, Nurbailis, & Yusniwati. (2021). Application of *Beauveria bassiana* Fungi through Seeds Immersion and Its Effect on Colonization and Content of Chlorophyll Leaves of Red Chili (*Capsicum annum* L.) . *Jurnal Pertanian Tropik*, Vol. 8.No.2.2021 (15) 107-116 ISSN No: 2356-4725/p-ISSN:2655-7576 DOI: 10.32734/jpt.v8i2, August.6519.
- Saragih, M., Trizelia, Nurbailis, & Yusniwati. (2019). Endophytic Colonization and Plant Growth Promoting Effect by Entomopathogenic fungus, *Beauveria bassiana* to Red Chili (*Capsicum annum* L.) with Different Inoculation Methods. *IOP Conference Series: Earth and Environmental Science*, 305(1). <https://doi.org/10.1088/1755-1315/305/1/012070>.
- Saragih, M., Trizelia, Nurbailis, & Yusniwati. (2022). Effect of Colonization of the Fungus *Beauveria bassiana* on Salicylic Acid Content and Population of *Bemisia tabaci* on Red Chili ( *Capsicum annum* L .). *The Seybold Report*, 17(8), 1119–1128. <https://doi.org/10.5281/zenodo.7003536>.
- Sari, J. M. P., Adrian, R., & Lubis, R. B. (2023). Jamur Endofit sebagai Biokontrol dan Pemacu Pertumbuhan Tanaman Pangan dan Hortikultura di Lahan Suboptimal. *Seminar Nasional Lahan Suboptimal*, 722–735.
- Saskia, C. M., Van, W., Sjoerd, V. D. E., Carne, M. J., & Pieterse. (2008). Plant Immune Responses Triggered by Beneficial Microbes. *Biology*, 11(4),443-448.

<https://doi.org/10.1016/pbi.2008.05.005>.

- Schulz, B., & Boyle, C. (2006). What are Endophytes?. In *Microbial Root Endophytes* (pp. 1-13). Berlin, Heidelberg: Springer Berlin Heidelberg.
- Senja, R. Y. S., Issusilaningtyas, E. E., Nugroho, A. K., & Setyowati, E. P. (2024). Perbandingan Metode Ekstraksi dan Variasi Pelarut terhadap Rendemen dan Aktivitas Antioksidan Ekstak Kubis Ungu (*Brassica oleraceae* L. var. *capita* f. *rubra*), *Traditional Medicine Journal*, 19: 43-48.
- Setiadi. (2008). *Bertanam Cabai*. Penerbit Swadaya.
- Shahab, S., Ahmed, N., & Khan, N. S. (2009). PSB Tested in Plant Growth. *Agricultural Research*, 4(11), 1312–1316.
- Shrestha, K., Strobel, G. A., Shrivastava, S. P., & Gewali, M. B. (2001). Evidence for Paclitaxel from Three New Endophytic Fungi of Himalayan Yew of Nepal. *Planta Medica*, 67(04), 374-376.
- Singh, H. B., Keswani, C., Ray, S., Yaada, S. K., Singh, S. P., & Singh, S. (2018). *Beauveria bassiana*; Biocontrol.
- Siswoyo, E., Masturah, R., & Fahmi, M. (2018). Bio-pestisida Berbasis Ekstrak Tembakau dari Limbah Puntung Rokok untuk Tanaman Tomat (*Lycopersicon esculentum*). *Jurnal Presifitasi: Media Komunikasi dan Pengembangan Teknik Lingkungan*, 15(2), September 2018.
- Soesanto, L., Sari, L. Y., Mugiastuti E., & Manan A. (2021). Cross aplication of entomopathogenic fungi raw secondary metabolites for controlling Fusarium wilt of chili seedlings. *Jurnal Hama dan Penyakit Tumbuhan Tropika* 21 (2):82-90.
- Soetopo, D., & Indrayani, I. G. A. A. (2021). *Status Teknologi dan Prospek Beauveria bassiana untuk Pengendalian Serangga Hama Tanaman Perkebunan yang Ramah Lingkungan*. Balai Penelitian Tanaman Tembakau dan Serat.
- Song, A. N. (2012). Evolusi Fotosintesis pada Tumbuhan. *Jurnal Ilmiah Sains*, 28-34.
- Stahl, E., Bell, W. H., Howel, C. R., & O'Dell, T. E. (1996). Interactions Between the Fungal Endophyte, *Neotyphodium*, and the Grass, *Lolium*: Effects on Host Growth and Alkaloid Accumulation Under Phosphorus Limitation. *Plant and Soil*, 182(2), 215-226.
- Sudha, V., Govindaraj, R., Baskar, K., Al-Dhabi, N. A., & Duraipandiyam, V. (2016). Biological properties of endophytic fungi. *Brazilian Archives of Biology and Technology*, 59, e16150436.
- Sukmadi, R., & Bambang. (2013). Aktifitas Fitohormon Indole-3-AceticAcid (IAA)

- dari Beberapa Isolat Bakteri Rizosfer dan Endofit. *Jurnal Sains Dan Teknologi Indonesia*, 14(3), 22–27.
- Sun, C., Li, S., Ju, Q., Zhu, S., Li, L., & Li, X. (2018). Dianhydromannitol from the Endophytic Fungus *Serendipita indica* Promotes Root Growth and Seeding Establishment in Wheat. *Journal of plant growth regulation*, 37(20), 453-462.
- Supriadi, D. R., Susila, A. D., & Sulistyono, E. (2018). Penetapan Kebutuhan Air Tanaman Cabai Merah (*Capsicum annum L.*) dan Cabai Rawit (*Capsicum frutescens L.*). *Jurnal Hortikultura Indonesia*, 9(1), 38–46. <https://doi.org/10.29244/jhi.9.1.38-46>.
- Susniahti, N. H., Sumeno, & Sudrajat. (2005). *Bahan Ajar Ilmu Hama Tanaman*. Universitas Padjajaran Fakultas Pertanian Jurusan Hama dan Penyakit: Bandung. 71 Halaman.
- Syamsia, Kuswinanti, T., Syam'un, E., & Masniawati, A. (2015). The Potency of Endophytic Fungal Isolates Collected from Local Aromatic Rice as Indole Acetic Acid (IAA) Producer. *Procedia Food Science*, 3, 96–103. <https://doi.org/10.1016/j.profoo.2015.01.009>.
- Syukur, M., Yuniarti, R., & Darmawan, R. (2017). *Budidaya Cabai*. Penerbit Swadaya.
- Tallapragada, P., & Gudimi, M. (2011). Phosphate Solubility and Biocontrol Activity of *Trichoderma harzianum*. *Turkish Journal of Biology*, 35(5), 593-600.
- Tan, R. X., & Zou, W. X. (2001). Endophytes: A rich source of functional metabolites. *Natural Product Reports*, 18(4), 448–459. <https://doi.org/10.1039/b100918o>.
- Thungrabeab, M., & Tongma, S. (2007). Effect of Entomopathogenic Fungi, *Beauveria bassiana* (Balsam) and *Metarhizium anisopliae* (Metsch) on Non Target Insects. *Science and Technology*, 7(1), 8–12.
- Trizelia, Armon, N., & Hetrys, J. (2015). Keanekaragaman Cendawan Entomopatogen pada Rizosfer Berbagai Tanaman Sayuran. *Prosiding Seminar Nasional Masy Biodiversitas Indonesia*, 998–1004.
- Trizelia, Sulyanti, E., & Saputra, R. (2020). Kemampuan Kolonisasi Cendawan Endofit *Trichoderma sp.* dan *Beauveria bassiana* pada Tanaman Cabai dan Pengaruhnya terhadap Populasi Kutu Daun *Myzus persicae*. *Prosiding Seminar Nasional. Fakultas Pertanian UPN Veteran, Yogyakarta*.
- Tsavkelova, E. A., Cherdyntseva, T. A., & Netrusov, A. I. (2005). Auxin Pproduction by Bacteria Associated with Orchid Roots. *Microbiology*, 74(1), 46–53. <https://doi.org/https://doi.org/10.1007/s11021-005-0027-6>.



- Vagicharla, P. K., Li, X., & Banerjee, S. (2012). Synthesis and Pharmaceutical Applications of Dianhydromannitol. *Journal of Medicinal Chemistry*, 55(15), 6789-6798. <https://doi.org/10.1021/jm3002345>.
- Vega, F. E. (2008). Insect Pathology and Fungal Endophytes. *Journal of Invertebrate Pathology*, 98, 277-279.
- Vega, F. E. (2018). The Use Of Fungal Entomopathogens As Endophytes In Biological Control: A Review. *Mycologia*, 110(1), 4-30.
- Verma, V. C., & Gange, A. C. (2012). *Endophytes: Fungal Endophytes and Their Role in Insect Pest Management*. Fungal ecology.
- Wagner, B. L., & Lewis, L. C. (2000). Colonization of Corn, *Zea mays*, by the Entomopathogenic Fungus *Beauveria bassiana*. *Applied and Environmental Microbiology*, 66(8), 3468-3473.
- Wang, D. Y., Mou, Y. N., Tong, S. M., Ying, S. H., & Feng, M. G. (2019). Photoprotective Role of Photolyase- Interacting RAD 23 and Its Pleiotropic Effect on the Insect-Pathogenic Fungus *Beauveria bassiana*. *Applied and Environment Microbiology*, 86 (11), 1-16.
- Wang, L., Ruan, L., & Wei, Q. (2020). Acetic Acid Enhances Plant Resistance to Pathogenic Bacteria Through Induction of Systemic Resistance and Priming of Defense Responses. *Frontiers in Plant Science*, 11(1), 1354. <https://doi.org/10.3389/fpls.2020.01354>.
- War, A. R., Paulraj, M. G., Ahmad, T., Buhroo, A. A., Hussain, B., Ignacimuthu, S., & Sharma, H. C. (2012). Mechanisms of Plant Defense Against Insect Herbivores. *Plant Signaling and Behavior*, 7(10), 1306–1320.
- Wasternack, C., & Hause, B. (2013). Jasmonates: Biosynthesis, Perception, Signal Transduction and Action in Plant Stress Response, Growth and Development. *An Update to the 2007 Review in Annals of Botany*, *Annals Of Botany*, (11196), 1021-1058.
- Woo, S., Scala, F., Ruocco, M., & Lorito, M. (2006). The Molecular Biology of the Interactions between *Trichoderma* spp., Phytopathogenic Fungi, and Plants. *Phytopathology*, 96(1), 181-185.
- Xu, J., Sun, E., Li, M., Liu, H., & Zhu, B. (2018). Key Issues and Solution Strategies for Supercritical Carbondioxide Coal Fired Power Plant. *Energy*, 157, 227-246.
- Yadav, A., & Yadav, K. (2017). Exploring the Potential of Endophytes in Agriculture: A Minireview. *Advances in Plants & Agriculture Research*, 6(4), 102–106. <https://doi.org/10.15406/apar.2017.06.00221>.

- Yoshida, T. (2001). Synthesis of Polysaccharides Having Specific Biological Activities. *Progress in Polymer Science*, 26(3), 379-441.
- Yuliani, D., & Rohaeni, W. R. (2017). Heritabilitas, Sumber Gen, dan Durabilitas Ketahanan Varietas Padi terhadap Penyakit Hawar Daun Bakteri. *Jurnal Litbang Pertanian*, 36(2), 99–108.
- Yulianti, T. (2013). Pemanfaatan Endofit Sebagai Agensia Pengendali Hayati Hama dan Penyakit Tanaman. *Buletin Tanaman Tembakau, Serat & Minyak Industri*, 5(1), 40–49.
- Yusniwati, Trizelia, Nurbailis, & Saragih, M. (2023). Profile and Bioactivity Compounds of *Beauveria bassiana* Fungi Entomopathogens of Endophytes as Plant Growth Boosters. *Agrium* ISSN 0852-1077 (Print) ISSN 2442-7306 (Online) April 2023 Volume 26.N0.1.
- Zhang, L. (2014). *Colonization Pattern of Crop Plants by Endophytic Fungi* <https://d-nb.info>. Dissertation, May 2014.
- Zhang, W. X. (2003). Nanoscale iron particles for environmental remediation: An overview. *Journal of Nanoparticle Research*, 5(3–4), 323–332. <https://doi.org/10.1023/A:1025520116015>.
- Zheng, Y., Liu, Y., Zhang, J., Liu, X., Ju, Z., Shi, H., & Zhou, W. (2023). Dual Role of Endophytic Entomopathogenic Fungi. Induce Plant Growth and Control Tomato Leafminer *Phthorimaea absoluta*. *Pest Management Science*, 79(11): 4557-4568.

