

## REFERENCES

- Agrawal, V.K., Tilak, R. and Gupta, K.K.D. 2005. Efficacy of Synthetic Pyrethroid and Propoxur Aerosol in the Control of German Cockroaches (Dictyoptera: Blattellidae) in Cookhouses, *Journal of Vector Borne Diseases*, 42(3).
- Ahmad, I. & Suliyat. 2011. Development of Fipronil Gel Bait Against German Cockroaches, *Blattella germanica* (Dictyoptera: Blattellidae): Laboratory and Field Performance in Bandung, Indonesia. *Journal of Entomology*, 8(3).
- Ak'yunin, K. 2008. Toksisitas Beberapa Golongan Insektisida terhadap Mortalitas *Selenothrips rubrocinctus* (Giard) pada Tanaman Jarak Pagar (*Jatropha curcas* L.) (Doctoral dissertation, Universitas Islam Negeri Maulana Malik Ibrahim).
- Amalyah, R., 2015. Isolasi Metabolit Sekunder dan Uji Aktivitas Insektisida Ekstrak N-Heksana Kulit Batang Tumbuhan Nyiri Batu (*Xylocarpus moluccenciss*) Isolation Secondary Metabolite and Activities Insecticides Test N-Heksana Extract of Thestem Bark of Nyiri Batu (*Xylocarpus moluccenciss*). *Unesa Journal Of Chemistry*, 4(1).
- Ambarningrum T. B., Fitri L. L., Basuki, E., Kustiati, K., Hariani, N., Ahmad, I. 2019. Detection of Glucose Aversion Behavior Development in German Cockroaches, *Blattella germanica* L. (Dictyoptera: Blattellidae) in Indonesia. *Journal Entomol.*
- Anggarawati, S. H., T. Santoso, & R. Anwar. 2017. Penggunaan Cendawan Entomopatogen *Beauveria bassiana* (Balsamo) Vuillemin dan *Lecanicillium lecanii* (Zimm) Zare & Gams untuk Mengendalikan *Helopeltis antonii* Sign (Hemiptera: Miridae) . *Jurnal Silvikultur Tropika* 8(3).
- Ardan, I.M., Nurdiana, D., & Maesyarah, S.S., 2019. Aplikasi Jamur Entomopatogen (*Beauveria bassiana*) dan Ekstrak Tumbuhan (*Ageratum conyzoides* L.) terhadap Larva Plutella. *JAGROS: Jurnal Agroteknologi dan Sains (Journal of Agrotechnology Science)*, 3(2).
- Ardi, F. J., Pasaru, F., & Nasir, B. 2017. Pengaruh Cendawan *Verticillium lecanii* (ZIMM) Isolat Palolo terhadap Mortalitas Walang Sangit *Leptocoris acuta* Thunberg (Hemiptera alydidae) pada Tanaman Padi (*Oryza sativa* L.). *Agroland: Jurnal Ilmu-Ilmu Pertanian*, 24(1).
- Arusyid, W.B., Saraswati, L.D. & Hestiningsih, R., 2016. Uji Efektifitas Entomophatogenic Fungi *Beauveria bassiana* terhadap Kematian *Blattella germanica* (L). *Jurnal Kesehatan Masyarakat*, 4(1).
- Astuti, W. & Widayastuti, C.R., 2017. Pestisida Organik Ramah Lingkungan Pembasmi Hama Tanaman Sayur. *Rekayasa: Jurnal Penerapan Teknologi dan Pembelajaran*, 14(2).
- Bayu, M.S.Y.I., Prayogo, Y. & Indiati, S.W. 2021 *Beauveria bassiana*: Biopestisida Ramah Lingkungan dan Efektif untuk Mengendalikan Hama dan Penyakit Tanaman', *Buletin Palawija*, 19(1).
- Chai, R. Y. & C .Y. Lee. 2010. Insecticide Resistance Profiles and Synergism in

- Field Populations of the German Cockroach (Dictyoptera: Blattellidae) from Singapore. *Journal of Economic Entomology*.
- Chang, S. K., E. H. Shin, J. S. Jung, C. Park & Y. Ahn. 2010. Monitoring for Insecticide Resistance in Field-Collected Populations of *Blattella germanica* (Blattaria: Blattellidae). *Journal of Asia-Pacific Entomology*, 13(1).
- Dampi, A.S.M., Watung, J. & Wantasen, S., 2022. The Effectiveness of Secondary Metabolic Bioinsecticides of Metarhizium Mushrooms on Corn Grower Pests *Spodoptera frugiperda* Je Smith (Lepidoptera: Noctuidae). *Jurnal Agroekoteknologi Terapan*, 3(1).
- Dannon, H.F., Dannon, A.E., Douro-Kpindou, O.K., Zinsou, A.V., Houndete, A.T., Toffa-Mehinto, J., Elegbede, I.M., Olou, B.D. & Tamò, M. 2020. Toward the Efficient Use of *Beauveria bassiana* in Integrated Cotton Insect Pest Management. *Journal of Cotton Research*, 3(1).
- Dewi, A.S., 2021. Potensi Metabolit Sekunder *Beauveria bassiana* (Bio B10) untuk Mengendalikan Hama Kutu Daun *Toxoptera citricida* pada Tanaman Jeruk di Rumah Kaca. (Doctoral dissertation, Universitas Jenderal Soedirman).
- Dinata, A. 2006. Insektisida yang Ramah Lingkungan. Badan Penelitian dan Pengembangan Pertanian. 106 p.
- Gillespie, A.T. & Moorhouse, E.R., 1989. The Use of Fungi to Control Pests of Agricultural. *Biotechnology of Fungi for Improving Plant Growth*, 16(2).
- Güner, Tülin Aşkun, & Aylin ER. 2023. Pınar Entomopathogenic Fungi and Their Potential Role in the Sustainable Biological Control of Storage Pests. *Commagen Journal Biology* 7(1).
- Hemingway, J. & G. J. Small. 1993. Resistance Mechanisms in Cockroaches – the Key to Control Strategies. Proceedings of the First International Conference on Urban Pests: 141-152. London.
- Herdatiarni, F., Himawan, T. & Rachmawati, R. 2014. Eksplorasi Cendawan Entomopatogen, *Hpt*, 1(September), pp. 1–11. Journal, A.A., Universitas, A. and Ratulangi, S. 2021. *Jurnal Agroekoteknologi* 2021, 2(1).
- Heviyanti, M., Husni, H. & Rusdy, A., 2016. Efektifitas Ekstrak Biji Mahoni (*Swietenia mahogani* Jacq.) terhadap Mortalitas dan Rata-rata Waktu Kematian Larva *Plutella xylostella* pada Tanaman Sawi. *Jurnal Penelitian Agrosamudra*, 3(1).
- Jirakkakul J, Punya J, Pongpattanakitshote S, Paungmoung P, Vorapreeda N, Tachaleat A, & Cheevadhanarak S., 2008. Identification of the Nonribosomal Peptide Synthetase Gene Responsible For Bassianolide Synthesis in Wood-Decaying Fungus *Xylaria* sp. BCC1067. *Microbiology* 154:995–1006.
- Kang, B., Vellody, D., Homburger, H. & Yunginger, J.W. 1979. Cockroach Cause of Allergic Asthma: Its Specificity and Immunologic Profile. *Journal of Allergy and Clinical Immunology*, 63(2).
- Keswani, Chetan., Harikesh Bahadur Singh, & Surya Pratap Singh. 2013. *Beauveria bassiana*: Status Mode of Action, Application and Safety Issues. *Journal of Biological Sciences*.

- Khari, N.A.M. & Ab Hamid, S. 2021. Efficacy of Insecticides on Black-Headed Stem Borer, *Chilo polychrysus* Walker (Lepidoptera: Pyralidae) in Glasshouse Condition.
- Koswanudin, D. & Wahyono, T.E. 2014. Keefektifan Bioinsektisida *Beauveria bassiana* terhadap Hama Wereng Batang Coklat (*Nilaparvata lugens*), Walang Sangit (*Leptocoris oratorius*), Pengisap Polong (*Nezara viridula*) dan (*Riptortus linearis*). in *Prosiding Seminar Nasional Pertanian Organik, Bogor*.
- Ladja FT, Santoso T, Nurhayati E. 2011. Potensi Cendawan Entomopatogen *Verticillium lecanii* dan *Beauveria bassiana* dalam Mengendalikan Wereng Hijau dan Menekan Intensitas Penyakit Tungro. Penelitian Pertanian Tanaman Pangan.
- Lauprasert, P., Sitthicharoenchai, D., Thirakhupt, K. & Pradatsudarasar, A.O. 2006. Food Preference and Feeding Behavior of the German Cockroach, *Blattella germanica* (Linnaeus). J. Sci. Res. Chula. Univ., 31(2).
- Limoe, M., A. A. Enayati, K. Khassi, M. Salimi & H. Ladonni. 2011. Insecticide Resistance and Synergism of Three Field-Collected Strains of the German Cockroach *Blattella germanica* (L.) (Dictyoptera: Blattellidae) from Hospitals in Kermanshah, Iran. Tropical Biomedicine. 28 (1).
- Maula, R.I., Pratiknyo, H., Susilo, U. & Ambarningrum, T. B. 2020. Efektivitas Zat Aktif Fipronil pada Berbagai Substrat Fagostimulan untuk Pengendalian Kecoak Jerman (*Blattella germanica* L.). *BioEksaka: Jurnal Ilmiah Biologi Unsoed*, 2(2).
- Minarni, E.W., Soesanto, L., Suyanto, A., & Rostaman 2021. Effectiveness of Secondary Metabolites from Entomopathogenic Fungi for Control *Nilaparvata lugens* Stål. in the Laboratory Scale, *Jurnal Perlindungan Tanaman Indonesia*, 25(1).
- Mulyani, F., Soesanto, L., Sastyawan, M. W. R. & Mujiono, M. 2022. Aplikasi Metabolit Sekunder Jamur Entomopatogen terhadap Wereng Batang Coklat (*Nilaparvata lugens* Stall.) IN PLANTA. Media Pertanian, 7(1).
- Negara, Abdi. 2003. Penggunaan Analisis Probit untuk Pendugaan Tingkat Kepekaan Populasi *Spodoptera exigua* Terhadap Deltametrin di Daerah Istimewa Yogyakarta. Informatika Pertanian.
- Nursal, E., P. S. Sudharto & R. Desmier De Chenon. 1997. Pengaruh Konsentrasi Ekstrak Bahan Pestisida Nabati Terhadap Hama. Balai Penelitian Tanaman Obat Bogor.
- Pradani, F. Y., Ipa, M., Marina, R. & Yuliasih, Y. 2011. Penentuan Status Resistensi *Aedes aegypti* dengan Metode Susceptibility di Kota Cimahi terhadap Cypermethrin. *Vektor: Jurnal Vektor dan Reservoir Penyakit*, 3(1).
- Prayogo, Y. W. Tengkano, & Marwoto. 2005. Prospek Cendawan Entomopatogen *Metarrhizium anisopliae* untuk Mengendalikan Ulat Grayak *Spodoptera litura* pada Kedelai. *Jurnal Litbang Pertanian*. 24(1).

- Putra M. A. 2017. Uji Toksisitas Akut LC<sub>50</sub> Limbah Cair Industry Penyamakan Kulit terhadap Ikan Nila (*Oreochromis niloticus*). Andalas University. Padang,
- Puu, Y. M. S. W. 2009. Pemanfaatan Cendawan Entomopatogen *Beauveria bassiana* (Balsamo) Vuilemin dalam Pengendalian Hama Tanaman. *Agrica: Journal of Sustainable Dryland Agriculture*, 2(1), pp.30-35.
- Quesada Moraga E. 2004. Bassiacridin, a Protein Toxic for Locusts Secreted by The Entomopathogenic fungus *Beauveria bassiana*. *Mycol Res.* 108:441-452.
- Rahayu, R., I. Ahmad, E. Sri Ratna, M. I. Tan & N. Hariani. 2012. Present Status of Carbamate, Pyrethroid dan Phenylpyrazole Insecticide Resistance to German Cockroach, *Blattella germanica* (Dictyoptera: Blattellidae) in Indonesia. *Journal of Entomology* 9(6).
- Robert & Yendol. 1982. Toxins of Entomopathogenic Fungi in HD Burgers (ED) Microbial Control of Pest and Plant Disease. Academic Press. London.
- Rohman, F. L., Saputro, T. B. & Prayogo, Y. 2017. Pengaruh Penambahan Senyawa Berbasis Kitin Terhadap Pertumbuhan Cendawan Entomopatogen *Beauveria bassiana*, *Jurnal Sains dan Seni ITS*, 6(2).
- Rustama, Melanie & Budi, 2008. Patogenitas Jamur Entomopatogen *Metharizium anisopliae* terhadap *Crocidolomia pavonana* Fab. dalam Kegiatan Studi Pengendalian Hama Terpadu Tanaman Kubis dengan Menggunakan Agensia Hayati. *Laporan Akhir Penelitian Peneliti Muda* (Litmud) UNPAD. Bandung: Lembaga Penelitian Universitas Padjadjaran.
- Sari, Widya, & Chindy Nur Rosmeita. 2020. Identifikasi Morfologi Cendawan Entomopatogen *Beauveria bassiana* dan *Metarhizium anisopliae* Asal Tanaman Padi Cianjur. Pro-Stek. 2(1).
- Sigit, H. S. & Hadi, U. K. 2006. *Hama Permukiman Indonesia*. Bogor: Unit Kajian Pengendalian Hama Permukiman.
- Soetopo, D. & Indrayani, I. 2015. Status Teknologi dan Prospek *Beauveria bassiana* untuk Pengendalian Serangga Hama Tanaman Perkebunan. *Perspektif: Review Penelitian Tanaman Industri*, 6(1).
- Sohn, M.H. & Kim, K.E. 2012. The Cockroach and Allergic Diseases. *Allergy, Asthma & Immunology Research*, 4(5).
- Susrama. 2017. Kebutuhan Nutrisi dan Substansi dalam Pakan Buatan Serangga. *E-Journal Agrotektonologi Tropika*.
- Tantawizal, Alfi Inayati, Yusmani Prayogo. 2015. Potensi Cendawan Entomopatogen *Beauveria bassiana* (Balsamo) Vuillemin untuk Mengendalikan Hama Boleng *Cylas formicarius* F. pada Tanaman Ubijalar. *Buletin Palawija*.
- Tarigan B. 2013. Uji Efektifitas *Beauveria basianna* dan *Bacillus thuringiensis* Terhadap Ulat Api (*Setothosea asigna* Eeck, Lepidoptera, Limacodidae) di Laboratorium. *Agreekoteknologi*;1(4).
- Tatfeng, Y. M. Usuanlele, M. U., Orukpe , A. 2005. Mechanical Transmission of Pathogenic Organisms: The Role of Cockroaches. *Journal of Vector Borne*

*Diseases*, 42(4).

- Tumewan, F. N., Jackson, W, Maxi, L., & D. R. K. 2020. Kajian Pengendalian Hama Penggerek Batang Cengkeh (*Hexamitodera Semivelutina* Hell.) Menggunakan Metabolit Sekunder Jamur *Metarhizium* dan *Beauveria* Dengan Metode Infus Akar. *Journal of Chemical Information and Modeling*, 53(9).
- Widiastuti, D. & Kalimah, I.F. 2017. Efek Larvasida Metabolit Sekunder *Beauveria bassiana* terhadap Kematian Larva *Aedes aegypti*, *Spirakel*, 8(2).
- Widiastuti, D., Ikawati, B. & Hadi, U.K. 2018. Larvicidal Effect of Mixture of *Beauveria bassiana* Crude Metabolite and Chitinase Enzyme Against *Aedes aegypti* Larvae. *Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)*, 12(4).
- Xu Y., Orozco R., Kithsiri Wijeratne E. M., Espinosa Artiles P., Leslie Gunatilaka A. A., Patricia Stock S., & Molnár I. (2009) Biosynthesis of the Cyclooligomer Depsipeptide Bassianolide, an Insecticidal Virulence Factor of *Beauveria bassiana*. *Fungal Genet Biol*, 46(2).
- Yağcı, M., Saçtı, Z., Yaşarer, H. & Şimşek, M. 2016. Main Cockroach Species in Urban Areas in Our Country and the World, Prevention and Alternative Control Methods of These Pests. *The Turkish Journal of Occupational/Environmental Medicine and Safety*, 1(4).
- Yang, C. L., Zhu, H. Y. & Zhang, F. 2019. Comparative Proteomics Analysis between the Short-Term Stress and Long-Term Adaptation of the *Blattella germanica* (Blattodea: Blattellidae) in Response to Beta-Cypermethrin, *Journal of Economic Entomology*, 112(3).
- Yunani, D. 2020. Aplikasi Metabolit Sekunder Jamur *Beauveria bassiana* untuk Mengendalikan Penggerek Buah Kopi pada Pertanaman Kopi Organik di Banjarnegara. Skripsi thesis, Universitas Jenderal Soedirman.
- Yunianti, L. 2016. Uji Efektivitas Ekstrak Daun Sirih Hijau (*Piper betle*) sebagai Insektisida Alami terhadap Mortalitas Walang Sangit (*Leptocoris acuta*). Skripsi. Universitas Sanata Dharma Yogyakarta. Yogyakarta.