

DAFTAR PUSTAKA

- Abdel-Aal, A. E., El-Sheikh, T. A, and Farag, A. M. 2009. Effectiveness of Insect Growth Regulators on the Cotton Leafworm, *S. littoralis* (Boisd.) Population on Egyptian Cotton in Menofia Governorate. Egypt, J. Agri. Res., 87(2): 177-190.
- Abraham, T. J., P. Paul., H. Adikesavalu., A. Patra and S. Banerjee. 2016. *Stenotrophomonas maltophilia* as An Opportunistic Pathogen in Cultured African Catfish *Clarias gariepinus* (Burchell, 1822). Aquaculture. 450 (1): 168 – 172.
- Adriyani, R. 2006. Usaha Pengendalian Pencemaran Lingkungan Akibat Penggunaan Pestisida Pertanian. Jurnal Kesehatan Lingkungan. 3(1); 95-106.
- Aggarwal, C., Paul, S., Tripathi, V., Paul, B and Khan, M.A. 2015. Chitinolytic Activity in *Serratia marcescens* (strain SEN) and Potency Against Different Larval Instar of *Spodoptera litura* with Effect of Sublethal Doses on Insect Development BioControl.
- Aisyah, M.D.N., Tarno, H dan Rahardjo, B.T. 2015. Respon Ulat Kubis *Plutella xylostella* Linn. (Lepidoptera: Plutellidae) Setelah Aplikasi *Plant Growth Promoting Rhizobacteria* (PGPR) Pada Tanaman Kailan (*Brassica oleracea* Var. *Alboglabra* 1). Jurnal HPT. Vol 3. No. 3. ISSN: 2338-4336.
- Bahagiawati. 2002. Penggunaan *Bacillus thuringiensis* Sebagai Bioinsektisida. Balai Penelitian Bioteknologi dan Sumberdaya Genetik Pertanian. Bogor.
- Bakker, P.A.H.M., Pieterse, C.M.J and Van Loon, L.C. 2007. Induced Systemic Resistance by Fluorescent *Pseudomonas* spp. Phytopathology 97: 239-243.
- Bano, A and Muqarab, R. 2017. Plant Defence Induced by PGPR against *Spodoptera litura* in Tomato (*Solanum lycopersicum* L.). Plant Biol (Stuttg) 19:406–412. <https://doi.org/10.1111/plb.12535>
- Ben Khedher, S., Boukedi, H., Dammak, M., Kilani-Feki, O., Sellami-Boudawara, T., Abdelkefi-Mesrati, L., Tounsi, S. 2017. Combinatorial Effect of *Bacillus amyloliquefaciens* AG1 Biosurfactant and *Bacillus thuringiensis* Vip3Aa16 Toxin on *Spodoptera littoralis* Larvae. J. Invertebrate Pathol. 144, 11–17.

Beneduzi, A., Ambrosini, A and Passaglia, L.M.P. 2012. PGPR En Rhizosfer Intro. Genet Mol Bio 35 (4): 1044-1051.

Bidari, F., Shams-Bakhsh, M and Mehrabadi, M. 2018. Isolation and Characterization of a *S. marcescens* with Insecticida Activity from *Polyphylla olivieri* (Col: Scarabidae). Journal of Applied Entomology. 142(2): 162-172.

Brurberg, M.B., Syntad, B., Klemsdal, S.S., Van Aalten, D.M.F., Sundheim, L and Eijsink, V.G.H. 2001. Chitinases from *Serratia marcescens*. Recent Research Developments in Microbiology.

Christina, L., Salaki, D.T dan Guntur, M. 2013. Prospek Pemanfaatan Biopestisida Bakteri Entomopatogenik Isolat Lokal Sebagai Agen Pengendali HayatiHama Tanaman Sayuran. Jurusan Hama dan Penyakit Tumbuhan. Fakultas Pertanian. Unsrat Manado. Vol. 19.

Contreras-Cornejo HA, Macías-Rodríguez L, Cortés-Penagos C, López-Bucio J. 2009. Trichoderma virens, a plant beneficial fungus, enhances biomass production and promotes lateral root growth through an auxin-dependent mechanism in arabidopsis. Plant Physiology 149:1579–1592.
<https://doi.org/10.1104/pp.108.130369>.

Coy M, Held DW, Kloepper JW. 2017. Bacterial inoculant treatment of bermudagrass alters ovipositional behavior, larval and pupal weights of the fall armyworm (Lepidoptera: Noctuidae). Environ Entomol 46:831–838.
<https://doi.org/10.1093/ee/nvx102>

Crossman, L.C., Gould, V.C., Dow, J.M., Vernikos, G.S., Okazaki, A and Sebaihia,M. 2008. The complete genome, comparative and functional analysis of *Stenotrophomonas maltophilia* reveals an organism heavily shielded by drug resistance determinants. Genome Biol. 9: R74.

Damalas, C.A., Koutroubas, S.D. 2018. Current Status and Recent Developments inBiopesticide Use. Agriculture 8, 13.

Denton, M dan K. G. Kerr. 1998. Microbiological and Clinical Aspects of Infection Associated with *Stenotrophomonas maltophilia*. Clinical Microbiology Reviews. 11 (1): 57 – 80.

Disi JO, Zebelo S, Kloepper JW, Fadamiro H. 2018a. Seed inoculation with beneficial rhizobacteria affects European corn borer (Lepidoptera: Pyralidae) oviposition on maize plants. Entomol Sci 21:48–58.
<https://doi.org/10.1111/ens.12280>

Disi JO, Kloepper JW, Fadamiro HY. 2018b. Seed treatment of maize with *Bacillus pumilus* strain INR-7 affects host location and feeding by Western corn

rootworm, *Diabrotica virgifera* virgifera. J Pest Sci 91:515–522. <https://doi.org/10.1007/s10340-017-0927-z>.

Dwimartina, F., Rostaman dan Soesanto, L. 2020. Keefektifan Bakteri *Serratia endosimbion* WBC Terhadap Ulat Grayak (*Spodoptera litura* F.) di Laboratorium Entomologi BBPOPT Jatisari Karawang. Jurnal Agro Wirralodra. 3(1): 29-35.

Elad, Y., Chet, I., and Baker, R. 1987. Increased growth response of plants induced by rhizobacteria antagonistic to soil borne pathogenic fungi. *Plant Soil* 98, 325–339. doi:10.1007/BF02378353.

Elsayed, I.A and Edress, N.O. 2016. Combined Effects of *Bacillus thuringiensis* and *Serratia marcescens* on Cotton Leaf Worm, *Spodoptera littoralis*. Journal of American Science 12. 28-31.

Fan YH, WG Fang, SJ Guo, XQ Pei, YG Zhang, YH Xiao, MJ Bidochka and Y Pei. 2007. Increased Insect Virulence in *Beauveria bassiana* Strains Over Expressing an Engineered Chitinase. Applied Environmental Microbiology 73, 295–302.

Gadhav KR, Finch P, Gibson TM, Gange AC. 2016a. Plant growth-promoting *Bacillus* suppress *Brevicoryne brassicae* field infestation and trigger density-dependent and density-independent natural enemy responses. J of Pest Sci 89:985–992. <https://doi.org/10.1007/s10340-015-0721-8>.

Gadhav KR, Hourston JE, Gange AC. 2016b. Developing soil microbial inoculants for pest management: can one have too much of a good thing? J Chem Ecol 42:348–356. <https://doi.org/10.1007/s10886-016-0689-8>

Gadhav KR, Gange AC. 2016. Plant-associated *Bacillus* spp. alter life-history traits of the specialist insect *Brevicoryne brassicae* L. Agri for Entomol 18:35–42. <https://doi.org/10.1111/afe.12131>

Garcia, J.A.L., Propanza, A., Ramos, B and Manero, F.J.G. 2003. Effects of Three Plant Growth-Promoting Rhizobacteria on the Growth of Seedlings of Tomato and Pepper in Two Different Sterilized and Nonsterilized Peats. *Arch. Agron. Soil Scie.* 49(1):119-127.

Gilbert, G.I., Iatrou, K and Gill, S.S. 2005. *Biochemistry of Digestion, in: Comprehensive Molecular Insect Science Biochemical and Molecular Biology*, 171-224. Elsevier Press. Oxford. UK.

Giri, A.V., Anandkumar, N.G., Muthukumaran and Pennathur, G. 2004. A Novel Medium for the Enhanced Cell Growth and Production of prodigiosin from *Serratia marcescens* Isolated from Soil. BMC Microbiol. 4:1-10.

- Gnanamanickam, S.S. 2006. Plant-Associated Bacteria. Springer. The Netherlands.
- Gupta, G., Parihar, S.S., Ahirwar, N.K., Snehi, S.K and Singh, V. 2015. Plant Growth Promoting Rhizobacteria (PGPR): Current and Future Prospect for Development of Sustainable Agriculture. J Microb Biochem Technol 2015. 7: 096-102.
- Hayat, Q., Hayat, S., Irfan, M and Ahmad, A. 2010. Effect of Exogenous Salicylic Acid under Changing Environment. Environ Exp Bot. 68(1): 14-25.
- Habazar, T dan Yaherwandi. 2006. Pengendalian Hayati Hama dan Penyakit Tumbuhan. Padang. Universitas Andalas Press. ISBN 979-3364-49-1. 390 hlm.
- Habazar, T. 2005. Pemanfaatan dan Pengembangan Bakteri Sebagai Agens Pengendalian Hayati. Makalah dalam "Pelatihan Pertanian Berkelanjutan", Kerjasama DIKTI dan Universitas Andalas di Padang tgl. 16-19 November.
- Hadioetomo, R.S. 1985. Mikrobiologi Dasar Dalam Praktek: Teknik dan Prosedur Dasar Laboratorium. Gramedia. Jakarta.
- Hakima, O.M., Farida, B., Souad, K.T., Arezki, M., Fatma, H and Ryma, H. 2019. Phylogeny and Molecular Study of Some Entomopathogenic Rhizobacteria Isolated from Two Regions in Algeria. Current Research in Bioinformatics 8: 55-61.
- Hamid, R., Khan, M.A., Ahmad, M., Ahmad, M.M., Abdin, M.Z., Musarrat, J and Javed, S. 2013. Chitinases: an update. J Pharm Bioallied Sci 5:21-29.
- Helmi, D., Sulistyanto dan Purwatiningsih. 2015. Aplikasi Agen Pengendali Hayati Terhadap Populasi Hama (*Plutella xylostella*. dan *C. pavonana* Zell.) dan Musuh Alaminya Pada Tanaman Kubis di Desa Kalibaru Kulon, Kab. Banyuwangi. Jurnal Ilmu Dasar Vol. 16 No. 2: 55-62.
- Hofte, H and Whiteley, H.R. 1989. Insecticidal Crystal Protein of *Bacillus thuringiensis*. Microbiological Rev. 53(2): 242-255.
- Hossain MT, Khan A, Chung EJ, Rashid MH, Chung YR .2016. Biological control of rice bakanae by an endophytic *Bacillus oryzicola* YC7007. Plant Pathol J 32:228–241. <https://doi.org/10.5423/PPJ.OA.10.2015.0218>.
- Husen TJ, Kamble ST, Stone JM. 2015. Effect of pentoxyfylline on chitinolytic enzyme activity in the Eastern subterranean termite (Isoptera: Rhinotermitidae). J Entomol Sci 50:295–310.

- Hyakumachi, M., Nishimura, M., Arakawa, T., Asano, S., Yoshida, S., Tsushima, S., Takahashi, H. 2013. *Bacillus thuringiensis* Suppresses Bacterial Wilt Disease Caused by *Ralstonia solanacearum* with Systemic Induction of Defense-Related Gene Expression in Tomato. *Microbes Environ.* 28 (1), 128–134.
- Ishi, K., Tatsuo, A.H., Hiroshi and Kazuhisa, S. 2014. *Serratia marcescens* Suppresses Host Cellular Immunity via the Production of an Adhesion-Inhibitory Factor against Immunosurveillance Cells. *The Journal of Biological Chemistry.* 289(9): 5876-5888.
- Jabeen, F., Hussain, A., Manzoor, M., Younis, T., Rasul, A., and Qazi, J. I. 2018. Potential of Bacterial Chitinolytic, *Stenotrophomonas maltophilia*, in Biological Control of Termites. *Egyptian Journal of Biological Pest Control.* 28:86. 1-10.
- Jouzani, G.S., Valijanian, E., Sharafi, R. 2017. *Bacillus thuringiensis*: a Successful Insecticide with New Environmental Features and Tidings. *App. Microbiol. Biotechnol.* 101, 2691–2711.
- Jumiarti, P. 2012. Pemurnian dan Karakterisasi Protein Insektisidal dari Bakteri Entomopatogen *Serratia marcescens*. [Skripsi]. Bogor. Institut Pertanian Bogor.
- Kahar, S.R.S., Hasan, A.M dan Lamangantjo. 2019. Aktivitas Entomopatogen *Serratia marcescens* Bizio Terhadap Mortalitas Larva Kumbang Kelapa (*Brontispa longissima*) Gestro. *Jambura Edu Biosfer Journal:* 1 (2): 64-71.
- Kalshoven, L.G.E. 1981. *The Pests of Crops in Indonesia.* Van Der Laan PA, Penerjemah. Jakarta: Ichtiar Baru-Van Hoeve.
- Khanafari, A., Assadi, M.M and Fakhr, F.A. 2006. Review of Prodigiosin. Pigmentation in *Serratia marcescens*. *Biol. Sci.* 6:1-13.
- Klement, Z., Rudolph, K and Sand, D.C. 1990. Metodhs in Phytobacteriology. Akademia Kiado: Budapest. Hungary.
- Kloepfer, J. W., Wei, G dan Tuzun, S. 1992. Rhizosphere Population Dynamics and Internal Colonization of Cucumber by Plant Growth Promoting Rhizobacteria Which Induce Systemic Resistance to *Colletotrichum orbiculare*. In. Jamos EC, G.C. Papavizas, and R.J. Cook. Editors. *Biological Control of Plant Disease. Progress and Challenge for the Future.*
- Kuddus, M., and Ramteke, P.W. 2009. Cold-active extracellular alkaline protease from an alkaliphilic *Stenotrophomonas maltophilia*: production of enzyme

- and its industrial applications. *Can. J. Microbiol.* 55, 1294–1301.doi:10.1139/w09-089.
- Laila J. 2016. Seleksi Rizobakteri Indigenos untuk Menenkan *Pantoea stewartii* subsp. *stewartii* dan Meningkatkan Pertumbuhan Tanaman Jagung. [Skripsi] Fakultas Pertanian. Universitas Andalas. Padang.
- Lauzon CR, TG Bussert, RE Sjogren and RJ Prokopy. 2003. *Serratia marcescens* as a Bacterial Pathogen of *Rhagoletis pomonella* Flies (Diptera: Tephritidae). *Europe Journal of Entomology* 100, 87-92.
- Leroy, P., Sabri, A., Verheggen, F.J., Francis, F., Thonart, P and Haubrige, E. 2011. The Semiochemically Mediated Interactions between Bacteria and Insects. Department of Functional and Evolutionary Entomology. University of Liege, Gembloux Agro-Bio Tech.
- Li, H., Soares, M.A., Soares, M.S., Bergen, M and White, Jr. 2015. Endophytic Bacterium, *Bacillus amyloliquefaciens*, Enhances Ornamental Hosta Resistance to Diseases and Insect Pests. *Journal of Plant Interactions*, 10:1, 224-229.
- Lina, E.C. 2014. Pengembangan Formulasi Insektisida Nabati Berbahan Ekstrak *Brucea javanica*, *piper aduncum* dan *Tephrosia vogelii* untuk Pengendalian Hama Kubis *Crocidolomia pavonana*. [Disertasi] Bogor. Sekolah Pascasarjana Institut Pertanian Bogor.
- Maghsoudi, S., Jalali, E. 2017. Noble UV Protective Agent for *Bacillus thuringiensis* Based on a Combination of Graphene Oxide and Olive Oil. *Sci. Rep.* 7 Art, 11019.
- Matsumoto KS. 2006. Fungal Chitinases. *Advanced in Agricultural and Food Biotechnology* 6, 289-304.
- Melatti, V.M., Praca, L.B., Martins, E.S., Sujii, E., Berry, C., Monnerat, R.G. 2010. Selection of *Bacillus thuringiensis* Strains Toxic Sgainst Cotton Aphid, *Aphis gossypii* (Hemiptera: Aphididae). *BioAssay* 5.
- Mohan, M., Sushil, S.N., Bhatt, J.C., Gujar, G.T and Gupta, H.S. 2008. Synergistic Interaction between Sublethal Doses of *Bacillus thuringiensis* and *Campoletis chlorideae* in Managing *Helicoverpa armigera*. *BioControl* 53:375-386.
- Muhammad, D. H. 2016. Kemampuan *Metarhizium anisopliae* (Metsch.) dan *Bacillus thuringiensis* (Berliner.) Dalam Mengendalikan *Crocidolomia*

pavonana (Fabr.) (Lepidoptera: Crambidae). Diploma Thesis, Universitas Andalas.

Myers, P., Espinosa, R., Parr, C.S., Jones, T., Hammond, G.S and Dewey, T.A. 2021. The Animal Diversity Web (online). Accessed at <https://animaldiversity.org>

Nurwidiani. 1991. Isolasi *Bacillus thuringiensis* dan Pengujian Toksisitasnya Terhadap Larva *Plutella xylostella* [Skripsi]. Program Sarjana Biologi Fakultas Matematika dan Ilmu Pengetahuan Alam. Institut Pertanian Bogor.

Oka, I.N. 2005. Pengendalian Hama Terpadu dan Implementasinya di Indonesia. Yogyakarta: Gadjah Mada University Press.

Osman, G.H., Assem, S.K., Alreedy, R.M., El-Ghareeb, D.K., Barry, M.A., Rastogi, A., Kalaji, H.M. 2015. Development of Insect Resistant Maize Plants Expressing a Chitinase Gene from the Cotton Leaf Worm, *Spodoptera littoralis*. Scientific Report 5:18067.

Paat, F.J., Pelealu, J dan Manueke, J. 2012. Produksi Kubis dan Persentase Serangan *Crossidolomia pavonana* Pada Beberapa Pola Tanam Kubis. Eugenia. 18 (1): 72-80.

Pandey C, Bajpai VK, NegiYK, Maheshwari DK .2018. Effect of plant growth promoting *Bacillus* spp. on nutritional properties of *Amaranthus hypochondriacus* grains. Saudi J Biol Sci. <https://doi.org/10.1016/j.sjbs.2018.03.003>

Pangesti, N., Reichelt, M and van de Mortel, J.E. 2016. Jasmonic Acid and Ethylene Signaling Pathways Regulate Glucosinolate Levels in Plants During Rhizobacteria-Induced Systemic Resistance Against a Leaf-Chewing Herbivore. J Chem Ecol 42:1212–1225. <https://doi.org/10.1007/s10826-016-1171-2>

Praca, L., Gomes, A.C.M., Cabral, G., Martins, E., Sujii, R and Monnerat, R.G. 2012. Endophytic Colonization by Brazilian Strains of *Bacillus thuringiensis* on Cabbage Seedlings Grown in Vitro, Bt Research , Vol.3, No.3 11-19.

Priyatno, T.P., Dahlian, Y.A., Suryadi, Y., Samudra, I.M., Susilowati, D.N., Rusmana, I dan Irwan, C. 2011. Identifikasi Entomopatogen Bakteri Merah Pada Wereng Batang Coklat (*Nilaparvata lugens* Stål.). Jurnal Agrobiogen. 7(2): 85–95.

- Qi, J., Aiuchi, D., Tani, M., Asano, S., Koike, M. 2016. Potential of Entomopathogenic *Bacillus thuringiensis* as Plant Growth Promoting Rhizobacteria and Biological Control Agents for Tomato Fusarium Wilt. Internat. J. Environ. Agricult. Res. 2, 55–63.
- Rahma, H., Arneti dan Nofrianti, S. 2018. Seleksi Rizobakteri dalam Menekan Pertumbuhan Cendawan *Diplodia maydis* Penyebab Penyakit Busuk Tongkol pada Jagung Secara In vitro. Prosiding Seminar Nasional Masyarakat Biodiversity Indonesia 4(2): 225-230.
- Rahma, H., Nurbailis and Kristina, N. 2019. Characterization and Potential of Plant Growth-Promoting Rhizobacteria on Rice Seedling Growth and the Effect on *Xanthomonas oryzae* pv.*oryzae*. Biodiversitas. Vol 20. Number 12: 3654-3661.
- Rahma, H., Zainal, A., Surahman, M., Sinaga, MS dan Giyanto. 2014. Potensi Bakteri Endofit dalam Menekan Penyakit Layu Stewart *Pantoea stewartii* subsp *stewartii* Pada Tanaman Jagung. Jurnal HPT Tropika. ISSN 1411-7525.
- Rashid, M.H., Chung, Y.R. 2017. Induction of Systemic Resistance against Insect Herbivores in Plants by Beneficial Soil Microbes. Front. Plant Sci. 8, 1816.
- Rasmussen, J.B., Hammerschmidt, R., Zook, M.N. 1991. Systemic Induction of Salicylic-Acid Accumulation in Cucumber after Inoculation with *Pseudomonas syringae* pv.*syringae*. Plant Physiol. 97 (4): 1342-1347.
- Rauf, A., Prijono, D., Dadang., Winasa, I.W and Russel, I.W. 2005. Survey of Pesticide Use by Cabbage Farmers in West Java, Indonesia [Research Report]. Bogor (ID): Department of Plant Pests and Disease, Bogor Agricultural University.
- Regev, A., Keller, M., Strizhov, N., Sneh, B., Prudovski, E., Chet, I., Ginzberg, I., Kalman, Z., Koncz, C., Schell, J and Zilberstein, A. 1996. Synergistic Activity of a *Bacillus thuringiensis* δ-Endotoxin and a Bacteria Endochitinase against *Spodoptera littoralis* Larvae. Journal Applied and Environmental Microbiology 3581-3586.
- Riandi, Mohammad Rifan. 2021. *Aplikasi Bakteri Merah (Serratia Marcescens) Untuk Pengendalian Hama Wereng Batang Coklat (Nilaparvata lugens) Pada Tanaman Padi di PT. Sirtanio Organik Indonesia Kabupaten Banyuwangi.* <https://sipora.polije.ac.id/id/eprint/4199>.
- Rini, M. S., Rahardian, R., Hadi, M dan Zulfiana, D. 2016. Uji Efikasi Beberapa Isolat Bakteri Entomopatogen terhadap Kecoak (Orthoptera) *Periplaneta*

- americana* (L.) dan *Blatella germanica* (L.) dalam Skala Laboratorium. Jurnal Biologi. 5(2): 1–10.
- Ryan, R.P., Monchy, S., Cardinale, M., Taghavi, S., Crossman, L and Avison, M.B. 2009. The Versatility and Adaptation Bacteria from the Genus *Stenotrophomonas*. *Nat. Rev. Microbiol.* 7, 514–525.
- Salaki, C.L., Tarore, D dan Manengkey, G. 2013. Prospek Pemanfaatan Biopesisida Bakteri Entomopatogenik Isolat Lokal Sebagai Agen Pengendali Hayati Hama Tanaman Sayuran. Jurusan Hama dan Penyakit Tumbuhan, Fakultas Pertanian, Unsrat Manado.
- Samsrot, A.V., Chandana, K., Senthilkumar, P and Kumar, N. 2011. Optimization of Prodigiosin Production by *Serratia marcescens* SU-10 and Evaluation of Its Bioactivity. International Research Journal of Biotechnology, 2(5): 128-133.
- Sari, N.J. 2002. Biologi *Crocidolomia pavonana* F. (Lepidoptera: Pyralidae) Pada Pakan Alami dan Pakan Semibuatan. Bogor. Fakultas Pertanian. Institut Pertanian Bogor. [Skripsi]. 48 hal.
- Sastrosiswojo, S dan Setiawati, W. 1993. Hama-hama Kubis dan Pengendaliannya. Balithor Lembang. Hlm 39-50.
- Schaad, N.W., Jones, J.B and Chun, W. 2001. Laboratory Guide for Identification of Plant Pathogenic Bacteria. St Paul: The American Phytopatology Society.
- Schunemann, R., Knaak, N and Fiuzza, LM. 2014. Mode of Action and Specificity of *Bacillus thuringiensis* Toxins in the Control of Caterpillars and Stink Bugs in Soybean Culture. Hindawi Publishing Corporation. Microbiology. 12 pages. ISRN
- Scoohnoven, L., Loon, V and Dicke, M. 2005. Insect Plant Biology. Oxford University Press. London.
- Sembel, D.T. 2010. Pengendalian Hayati Hama-Hama Serangga Tropis dan Gulma. Andi Offset. Yogyakarta.
- Shavit, R., Ofek-Lalzar, M., Burdman, S and Morin, S. 2013. Inoculation of tomato plants with rhizobacteria enhances the performance of the phloem-feeding insect *Bemisia tabaci*. Front Plant Sci 4:306. <https://doi.org/10.3389/fpls.2013.00306>

- Sharma, R., Chisti, Y., and Banerjee, U.C. 2001. Production, purification, characterization, and applications of lipases. *Biotechnol. Adv.* 19, 627–662.doi: 10.1016/S0734-9750(01)00086-6.
- Silverman, P., Seskar, M., Kanter, D., Schweizer, P and Metraux, J. 1995. Salicylic Acid in Rice (Biosynthesis, Conjugation, and Possible Role). *Plant Physiol.* 108: 633-639.
- Sunarjono. 2003. Bertanam 30 Jenis Sayuran. Penebar Swadaya. Jakarta.
- Syamsu, K., Rahayuningsih, M dan Yulianti, F. 2011. Pengaruh Aerasi Terhadap Produksi Bioinsektisida oleh *Bacillus thuringiensis* subsp. *Israeleensis* Pada Bioreaktor Tangki Berpengaduk dan Kolom Gelembung. Jurusan Teknologi Ilmu Pertanian Fakultas Teknologi Pertanian Institut Pertanian Bogor. Bogor.
- Tanada, Y and Kaya, H.K. 1993. Insect Pathology. Academic Press, San Diego, California.
- Tarumingkeng, R.C. 2001. Makalah Falsafah Sains (Pps 702) Program Pascasarjana Institut Pertanian Bogor. Oktober. 2001.
- Thuler, R.T., Filho, F.H.I., Charlo, H.C.O., De Bortoli, S.A. 2017. Effects of Rhizobacteria on The Biology and Behaviour of *Plutella xylostella* (Lepidoptera: Plutellidae). *Revista Colombiana de Entomología* 43 (2): 195-200.
- Trizelia. 1994. Infeksi *Bacillus thuringiensis* Berliner pada Larva *Heliothis armigera* Hubner (Lepidoptera: Noctuidae) dan Pengaruhnya Terhadap Konsumsi Polong Kedelai [Tesis]. Program Pascasarjana. Institut Pertanian Bogor.
- Trizelia. 2005. Cendawan Entomopatogen *Beauveria bassiana* (Bals.) Vuill. (Deuteromycotina: Hyphomycetes) Keragaman Genetik, Karakterisasi Fisiologis dan Virulensinya Terhadap *Crocidiolomia pavonana* (F.) (Lepidoptera; Pyralidae) [Disertasi]. Institut Pertanian Bogor, Bogor.
- Vacheron J, Desbrosses G, Bouffaud M et al. 2013 Plant growth-promoting rhizobacteria and root system functioning. *Front Plant Sci* 4:356. <https://doi.org/10.3389/fpls.2013.00356>.
- Vajri,I. Y., 2014. Toksisitas Beberapa Isolat Bakteri Penghasil Kristal Protein dari Rizosfer Beberapa Jenis Tanaman Terhadap Hama *Spodoptera litura* F. (Lepidoptera: Noctuidae) [Skripsi]. Universitas Andalas, Padang.

- Valenzuela-Soto, J.H., Estrada-Hernandez, M.G., Ibarra-Laclette, E and Delano-Frier, J.P. 2010. Inoculation of Tomato Plants (*Solanum lycopersicum*) with Growth-Promoting *Bacillus subtilis* Retards Whitefly *Bemisia tabaci* Development. *Planta* 231:397–410. <https://doi.org/10.1007/>
- Vallad, G.E dan Goodman, R.M. 2004. Systemic Acquired Resistance and Induced Systemic Resistance in Conventional Agriculture. *J. Crop Science.* 44: 1920-1934.
- Van Loon LC. 2007 Plant responses to plant growth-promoting rhizobacteria. *Eur J Plant Pathol* 119:243–254. <https://doi.org/10.1007/s10658-007-9165-1>.
- Wan, C.M., Tseng, C.S., Cheng, C.Y and Li, Y.K. 2002. Purification, Characterisation and Cloning of a Chitinase from *Bacillus sp.* NCTU. *Biotechnology and Applied Biochemistry*, 35, 213-219.
- Wang, S.L., Lin, T.Y., Yen, Y.H., Liao, H.F., Chen, Y.J. 2006. Bioconversion of Shellfish Chitin Wastes for the Production of *Bacillus subtilis* W-118 Chitinase. *Carbohydr Res* 341:2507–2515.
- Whipps, J.M. 2001. Microbial Interactions and Biocontrol in the Rhizosphere. *J Exp Bot* 52: 487-511.
- Wibowo, B.S., L. Retnowati, A. Sutaryat, C. Irwan, dan Y. Kurniadi. 2002. Uji Lapang Bakteri Merah Terhadap Wereng Batang Coklat (di Daerah Endemis). Laporan Kajian. Balai Penelitian Organisme Pengganggu Tanaman, Jatisari. Hal. 33-42.
- Zebelo, S., Song, Y., Kloepper, J.W and Fadamiro, H. 2016. Rhizobacteria Activates (+) Delta Cadinene Synthase Genes and Induces Systemic Resistance in Cotton against Beet Armyworm (*Spodoptera exigua*). *Plant Cell Environ* 39:935–943. <https://doi.org/10.1111/pce.12704>
- Zehnder, G.W., Kloepper, C., Yao and Wei, G. 1997. Induction of Systemic Resistance in Cucumber against Cucumber Beetles (Coleoptera: Chrysomelidae) by Plant Growth-Promoting Rhizobacteria. *Journal of Economic Entomology* 90 (2): 391-396.
- Zhang H, Xie X, Kim MS, Kornyeyev DA, Holaday S, Pare PW. 2008. Soil bacteria augment Arabidopsis photosynthesis by decreasing glucose sensing and abscisic acid levels in planta. *Plant J* 56:264–273. <https://doi.org/10.1111/j.1365-313x.2008.03593.x>.

Zulfiana, D., Krishanti, N.P.R.A., Wikantyoso, B dan Zulfitri, A. 2017. Bakteri Entomopatogen Sebagai Agen Biokontrol Terhadap Larva *Spodoptera litura* (F.). Berita Biologi 16(1).

