UNIVERSITAS GADJAH MADA
Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

DAFTAR PUSTAKA

Abdelmoteleb A, Rosalba TR, Gonzalez-Soto T, González-Mendoza Daniel. 2017. Antifungical Activity of Autochthonous Bacillus subtilis Isolated from Prosopis juliflora against Phytopathogenic Fungi. Mycobiology 45(4): 385-391. https://doi.org/10.5941/MYCO.2017.45.4.385

Adams LK, Lyon DY, Alvarez PJJ. 2006. Comparative eco-toxicity of nanoscale TiO_2, SiO_2, and ZnO water suspensions. Water Research 40(19): 3527-3532.

Adatia MH, Besford, RT. 1986. The Effects of Silicon on Cucumber Plants Grown in Recirculating Nutrient Solution. Annals of Botany 58: 343-351. https://doi.org/10.1093/oxfordjournals.aob.a087212

Afsholnissa S, Hernawan E, Lastini T. 2019. Land cover change and land use suitability analyses of coastal area in Bantul District, Yogyakarta, Indonesia. Biodiversitas 20(5): 1475-1481. https://doi.org/10.13057/biodiv/d200541

Agostinho F, Tubana B, Martins M, Datnoff L. 2017. Effect of different silicon sources on yield and silicon uptake of rice grown under varying phosphorus rates. Plants 6: 35. https://doi.org/10.3390/plants6030035

Agrios G. 2005. Plant Pathology. 5th ed. Academic Press. New York, USA.

Ahanger RA, Bhat HA, Bhat TA, Ganie SA, Lone AA *et al*. 2013. Impact of climate change on plant diseases Intern. J. Modern Plant Animal Sci 1(3): 105-115.

Ahmed E, Holmstrom SJM. 2014. Siderophores in environmental research: roles and applications. Microb Biotechnol 7: 196–208. https://doi.org/10.1111/1751-7915.12117

Ahmed MF, Hassen U, Qadeer, Aslam MA. 2011. Silicon application and drought tolerance mechanism of sorghum. Afr J Agric Res 6: 594-607. doi:10.5897/AJAR10.626

Akintokun AK, Akande GA, Akintokun PO. 2007. Solubilization of insoluble phosphate by organic acid-producing fungi isolated from Nigerian soil. Int J Soil Sci 4: 301-307. https://doi.org/10.3923/ijss.2007.301.307

Aleksandrov VG. 1958. Organo-mineral fertilizers and silica bacteria. Dokl Akad S Kh Nauk 7:43–48.

Ara I, Bukhari NA, Wijayanti DR, Bakir MA. 2012. Proteolytic activity of alkaliphilic, salt-tolerant actinomycetes from various region in Saudi Arabia. Afr J Biotechnol 11(16): 3894–3857. https://doi.org/10.5897/AJB11.3950

Ashtiani FA, Kadir J, Nasehi A, Hashemian SR, Rahaghi, Sajili H. 2012. Review Article: Effect of Silicon on Rice Blast Disease. Pertanika J Trop Agric Sci 35: 1 - 12.

Astriani M, Murtiyaningsih H. 2018. Measurement of Indole-3-Acetic Acid (IAA) in Bacillus sp. with the addition of L-Tryptofan. Bioeduscience 2 (2): 116-121. https://doi.org/10.29405/j.bes/22116-1212233

Azmi A, Yuwono AS, Erizal, Kurniawan A, Mulyanto B. 2015. Analysis of dustfall from regosol soil in Java Island, Indonesia. ARPN Journal of Engineering and Applied Sci 10(18): 8184-8191.

Badan Pusat Statistik [BPS] DIY. 2016. Kecamatan Dalam Angka 2016. Daerah Istimewa Yogyakarta.

Bais HP, Park SW, Weir TL, Callaway RM, Vivanco JM. 2004. How plants communicate using the underground information superhighway. Trends in Plant Sci 9: 26-32. https://doi.org/10.1016/j.tplants.2003.11.008

Bakker PAHM, Lamers JG, Bakker AW, Marugg JD, Weisbeek PJ, Schippers B 1986. The role of siderophores in potato tuber yield increase by *Pseudomonas putida* in a short rotation of potato. Neth. J Plant Pathol 92: 249–256. https://doi.org/10.1007/BF01977588

BAM [Bacteriologial Analitical Manual]. 2001. Center food safety and applied nutrition (Chapter 3): U.S Food and Drug Administration (FDA).

Barker WW, Welch SA, Chu S, Baneld JF. 1998. Experimental observations of the effects of bacteria on aluminosilicate weathering. Am Mineral 83: 1551–1563. https://doi.org/10.2138/am-1998-11-1243

Bhutani N, Maheshwari R, Negi M, Suneja P (2018) Optimization of IAA production by endophytic *Bacillus* spp. from *Vigna radiata* for their potential use as plant growth promoters. Isr J Plant Sci 65:83–96. http://doi.org/10.1163/22238980-00001025

Bist V, Niranjan A, Ranjan M, Lehri A, Seem K, Srivastava S .2020. Silicon-Solubilizing Media and Its Implication for Characterization of Bacteria to Mitigate Biotic Stress. Front Plant Sci 11: 28. https://doi.org/10.3389/fpls.2020.00028

Bosah O, Igeleke CA, Omorusi VI. 2010. In vitro microbial control of pathogenic Sclerotium rolfsii. Inter J of Agric and Biol 12(3): 474–476.

Bowen P, Menzies J, Ehret D. 1992. Soluble silicon sprays inhibit powdery mildew development on grape leaves. J Amer Soc Hortic Sci 117: 906–912. https://doi.org/10.21273/JASHS.117.6.906

Buysens S, Heungens K, Poppe J, Hofte M. 1996. Involvement of pyochelin and pyoverdin in suppression of Pythium-induced damping-off of tomato by Pseudomonas aeruginosa 7NSK2. Applied Environ Microbiol 62: 865-871. https://doi.org/10.1128/AEM.62.3.865-871.1996

Calvaruso C, Mareschal L, Turpault MP, Leclerc E. 2009. Rapid clay weathering in the rhizosphere of Norway spruce and oak in an acid forest ecosystem. Soil Sci Soc Am J 73: 331-338. https://doi.org/10.2136/sssaj2007.0400

Chandrakala C, Voleti SR, Bandeppa S, Kumar NS, Latha PC. 2019. Silicate solubilization and plant growth promoting potential of Rhizobium Sp. isolated from rice rhizosphere. Silicon (11): 1–12. https://doi.org/10.1007/s12633-019-0079-2

Chen Y, Liu M, Wang L, Lin W, Fan X, Cai K. 2014. Proteomic characterization of silicon-mediated resistance against *Ralstonia solanacearum* in tomato. Plant Soil (387): 425–440. https://doi.org/10.1007/s11104-014-2293-4

Chi Q, Tang W, Liu L, Meng J, Dong X, Chen W, Li X. 2018. Isolation, properties of *Enterobacter* sp. LX3 capable of producing indoleacetic acid. Appl Sci (8): 2108. https://doi.org/10.3390/app8112108

Chuankun X, Minghe M, Leming Z, Keqin Z. 2004. Soil volatile fungistasis and volatile fungistatic compounds. Soil Biology and Biochemistry 36(12):1997-2004. https://doi.org/10.1016/j.soilbio.2004.07.020

Costa R, Gomes NCM, Krögerrecklenfort E, Opelt K, Berg G, Smalla K. 2007. Pseudomonas community structure and antagonistic potential in the rhizosphere: insights gained by combining phylogenetic and functional gene-based analyses. Environ Microbiol 9: 2260–2273. https://doi.org/10.1111/j.1462-2920.2007.01340.x

Cramer CS. 2000. Breeding and genetics of fusarium basal rot resistance in onion. Euphytica 115: 159–166. https://doi.org/10.1023/A:1004071907642

Dawar S, Hayat S, Anis M, Zaki MJ. 2008. Effect of seed coating material in the efficacy of microbial antagonists for the control of root rot fungi on Okra and Sunflower. Pakistan Journal of Botany 40(3): 1269–1278.

Dinakaran D, Gajendran G, Mohankumar S, Karthikeyan G, Thiruvudainambi S, Jonathan EI, *et al*. 2013. Evaluation of integrated pest and disease management module for shallots in Tamil Nadu, India: A farmer's participatory approach/ J Integrated Pest Manag 4(2). http://doi.org/10.1603/IPM12019

Elad Y, Kapat A. 1999. The role of *Trichoderma harzianum* protease in the biocontrol of Botrytis cinerea. Europ J Plant Pathology 105(2): 177–189. https://doi.org/10.1023/A:1008753629207

El-Bendary MA, Hamed HA, Moharam ME. 2016. Potential of *Bacillus* isolates as bio-control agents against some fungal phytopathogens. Biocatal Agric Biotechnol 5: 173–178. http://doi.org/10.1016/j.bcab.2016.02.001

Fakhrunnisa, Hashmi MH, Ghaffar A. 2006. In vitro interaction of Fusarium spp., with other fungi. Pakistan J of Botany 38(4): 1317–1322.

Farooq MA, Dietz JK. 2015. Silicon as Versatile Player in Plant and Human Biology: Overlooked and Poorly Understood. Front. Plant Sci 6: 994. https://doi.org/10.3389/fpls.2015.00994

Fauteux F, Remus-Borel W, Menzies JG, Belanger RR. 2005. Silicon and plant disease resistance against pathogenic fungi. FEMS Microbiology Letters 249 (1): 1–6. https://doi.org/10.1016/j.femsle.2005.06.034

Fikdalillah, Basir M, Wahyudi I. 2016. The effect of cow manure on phosphate uptake of cabbage (Brassica pekinensis) in entisols sidera. E-J Agrotekbis 4(5): 491-499.

Fortunato AA, Rodrigues F, Do Nascimento KJ. 2012. Physiological and biochemical aspects of the resistance of banana plants to Fusarium wilt potentiated by silicon. Phytopathology 102: 957–966. https://doi.org/10.1111/jph.12005

Garbeva P, Van Veen J, van Elsas J (2004) Microbial diversity in soil: selection of microbial populations by plant and soil type and implications for disease suppressiveness. Annual Rev of Phyto 42(2):243-270. https://doi.org/10.1146/annurev.phyto.42.012604.135455

UNIVERSITAS GADJAH MADA
Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Glick BR. 2012 Plant growth-promoting bacteria: mechanisms and applications. Scientifica 1–15. https://doi.org/10.6064/2012/963401

Goddard VJ, Bailey MJ, Darrah P, Lilley AK, Thompson IP. 2001. Monitoring temporal and spatial variations in rhizosphere bacterial population diversity: A community approach for the improved selection of rhizosphere competent bacteria. Plant and Soil 232: 181-193. https://doi.org/10.1023/A:1010302607616

Gong H, Zhu X, Chen K, Wang S, Zhang C. 2005. Silicon alleviates oxidative damage of wheat plants in pots under drought. Plant Sci 169: 313–321. https://doi.org/10.1016/j.plantsci.2005.02.023

Gravel V, Antoun H, Tweddell RJ. 2007. Effect of indole-acetic acid (IAA) on the development of symptoms caused by *Pythium ultimum* on tomato plants. Eur J Plant Pathol 119: 457–462. https://doi.org/10.1007/s10658-007-9170-4

Guyot, Omanda GN. 2005. Some Epidemiological Investigations on Colletotrichum Leaf Disease On Rubber Tree“, J. Crop Protection 24: 65 – 77. https://doi.org/10.1016/j.cropro.2004.06.009

Haas D, Défago G. 2005. Biological control of soil-borne pathogens by fluorescent pseudomonads. Nat Rev Microbiol 3: 307-319. https://doi.org/10.1038/nrmicro1129

Hadiwiyono, Sari K, Poromarto SH. 2020. Yields Losses Caused by Basal Plate Rot (*Fusarium oxysporum* f.sp. *cepae)* in Some Shallot Varieties. Caraka Tani: Journal of Sustain Agric 35(2): 250. https://doi.org/10.20961/carakatani.v35i2.26916

Hadiwiyono. 2008. Tanah supresif: terminologi, sejarah, karakteristik, dan mekanisme. J Perlindungan Tanaman Indonesia 14 (2): 47-54. https://doi.org/10.22146/jpti.11881

Haggag WM, Mohamed HAA. 2007. Biotechnological aspects of microorganisms used in plant biological control. Am-Eurasian J Sustain Agric 1: 7–12.

Halebian SB, Harris SM, Finegold, Rolfe RD. 1981. Rapid method that aids in distinguishing gram-positive from gram-negative anaerobic bacteria. J Clin Microbiol 13:444 448. https://doi.org/10.1128%2Fjcm.13.3.444-448.1981

Hallmark CT, Wilding LP, Smeck NE. 1983. Silicon. In Methods of Soil Analyses, No. 9, Part 2. Eds Al Page, H Miller and DR Keeney 263–273. American Society of Agronomy, Incorporation, Soil Science Society of America, Incorportion Publisher, Madison. https://doi.org/10.2134/agronmonogr9.2.2ed.c15

Hassan MN, Afghan S, Hafeez FY. 2010. Suppression of Red Rot Caused by Colletotrichum falcatum on Sugarcane Plants Using Plant Growth-Promoting Rhizobacteria. BioControl (55): 531-542. https://doi.org/10.1007/s10526-010-9268-z

Hawerroth C, Araujo L, Maria B. Bermúdez-Cardona. 2019. Silicon-mediated maize resistance to macrospora leaf spot. Tropical Plant Pathology 44: 192–196. https://doi.org/10.1007/s40858-018-0247-8

Hayasaka T, Fujii H, Ishiguro K. 2008. The role of silicon in preventing appressorial penetration by the rice blast fungus. Phytopathology (98): 1038–1044. https://doi.org/10.1094/PHYTO-98-9-1038

Hernandez-Pacheco CE, Orozco-Mosqueda MDC, Flores A, Valencia-Cantero E, Santoyo. 2021. Tissue-specific diversity of bacterial endophytes in Mexican husk tomato plants (*Physalis ixocarpa* Brot. ex Horm.), and screening for their multiple plant growth-promoting activities. Curr Research in Microb Sci 2:100028. https://doi.org/10.1016/j.crmicr.2021.100028

Heyrman J, Vanparys B, Logan NA, Balcaen A, Rodriguez-Diaz M, Felske A, De Vos P (2004) Bacillus novalis sp. nov., Bacillus vireti sp. nov., Bacillus soli sp. nov., Bacillus bataviensis sp. nov. and Bacillus drentensis sp. nov., from the Drentse A grasslands. Int J Syst Evol Microbiol 54:47-57. https://doi.org/10.1099/ijs.0.02723-0

Hu QP, Xu JG. 2011. A Simple Double-Layered Chrome Azurol S Agar (SD-CASA) Plate Assay To Optimize The Production Of Siderophores By A Potential Biocontrol Agent *Bacillus*. Afric J of Microb Res 5(25): 4321-4327. https://doi.org/10.5897/AJMR11.238

Idris EE, Bochow H, Ross H, Borriss R. 2004. Use of Bacillus subtilis as biocontrol agent. 6. Phytohormonelike action of culture filtrates prepared from plant growth-promoting *Bacillus amyloliquefaciens* FZB24, FZB42, FZB45 and *Bacillus subtilis* FZB37. Journal of Plant Diseases and Protection 111(6): 583±97.

Jangir M, Pathak R, Sharma S, Sharma S. 2018. Biocontrol mechanisms of *Bacillus* sp., isolated from tomato rhizosphere, against *Fusarium oxysporum* f. sp. *lycopersici*. Biol Control 123: 60–70. https://doi.org/10.1016/j.biocontrol.2018.04.018

Kalman B, Abraham D, Graph S, Perl-Treves R, Harel YM, Degani O. 2020. Isolation and Identification of *Fusarium* spp., the Causal Agents of Onion (*Allium cepa*) Basal Rot in Northeastern Israel. Biology 9(69). https://doi.org/10.3390/biology9040069

Kang MS, Radhakrishnan R, Khan LA, Kim JM, Park JM, Kim RB, Shin HD, Lee JI. 2014. Gibberellin secreting rhizobacterium, *Pseudomonas putida* H-2-2 modulates the hormonal and stress physiology of soybean to improve the plant growth under saline and drought condition. Plant Physiol Biochem 84: 115-124. https://doi.org/10.1016/j.plaphy.2014.09.001

Kang SM, Waqas M, Shahzad R, You YH, Asaf S, Khan MA, *et al.* 2017. Isolation and characterization of a novel silicate-solubilizing bacterial strain *Burkholderia eburnea* CS4-2 that promotes growth of japonica rice (Oryza sativa L. cv. Dongjin). J Soil Sci Plant Nutr 63: 233–241. https://doi.org/10.1080/00380768.2017.1314829

Kareem FAE, Elshahawy IE, Abd-Elgawad MMM. 2019. Effectiveness of silicon and silicate salts for controlling black root rot and induced pathogenesis-related protein of strawberry plants. Bulletin of the National Research Centre 43: 91. https://doi.org/10.1186/s42269-019-0139-1

Karnwal A. 2009. Production of Indol acetic acid by fluorescent Pseudomonas in the presence of L-Tryptophan and Rice root exudates. J of Plant Pathol 91: 61-63. doi:10.4454/jpp.v91i1.624

Kastono D. 2007. Aplikasi model rekayasa lahan terpadu guna meningkatkan produksi hortikultura secara berkelanjutan di lahan pasir pantai. J ilmu-ilmu pertanian 3(2): 112-123.

Katiyar V, Goel R. 2004. Siderophore mediated plant growth promotion at low temperature by mutant of fluorescent pseudomonad. Plant Growth Regulation 42: 239-244. https://doi.org/10.1023/B:GROW.0000026477.10681.d2

Kenneth OC, Nwadibe EC, Kalu AU, Unah UV. 2017. Review article: Plant Growth Promoting Rhizobacteria (PGPR): A Novel Agent for Sustainable Food Production. American J of Agric and Biol Sci 2019 14: 35-54. https://doi.org/10.3844/ajabssp.2019.35.54

Khamna S, Yokota A, Peberdy JF, Lumyong S. 2010. Indole-3-acetic acid production by Streptomyces sp. isolated from some Thai medicinal plant rhizosphere soils. Eur Asia J BioSci 4: 23-32. doi:10.5053/ejobios.2010.4.0.4

Kloepper JW, Tuzun S, Kuc JA. 1992. Proposed definitions related to induced disease resistance. Biocontrol Sci Technol 2: 349–351. https://doi.org/10.1080/09583159209355251

Knight CTG, Kinrade SD. 2001. A primer on the aqueous chemistry of silicon. In: Silicon in Agriculture Studies in Plant Science. Datnoff L E., G. H. Snyder, and G. H. Korndörfer (eds.). Amsterdam, The Netherlands: Elsevier 8: 57–84. https://doi.org/10.1016/S0928-3420(01)80008-2

Kumawat N, Kumar R, Khandkar UR, Yadav RK, Saurabh K, Mishra JS, Dotaniya ML, Hans H. 2019. Silicon (Si)- and Zinc (Zn)-Solubilizing Microorganisms: Role in Sustainable Agriculture. Biofertilizers for Sustainable Agriculture and Environment. Soil Biology 55. https://doi.org/10.1007/978-3-030-18933-4_6

Kumawat N, Kumar R, Kumar S, Meena VS. 2017. Nutrient solubilizing microbes (NSMs): its role in sustainable crop production. In book agriculturally important microbes for sustainable agriculture. Springer 25–61. https://doi.org/10.1007/978-981-10-5343-6_2

Kurnianta MJ, Setiawati TC, Jayus J. 2019. Pelarutan P dan K dari batuan leusit dan apatit menggunakan kombinasi senyawa humat-BPF-BPK. Menara Perkebunan 87 (2): 111-122. http://doi.org/10.22302/iribb.jur.mp.v87i2.330

Lauwers AM. 1974. Bio-degradation and utilization of silica and quartz. Arch Microbiol (95): 67–78. https://doi.org/10.1007/BF02451749

Lee KE, Adhikari A, Kang SM, You YH, Joo GJ, Kim JH *et al*. 2019. Isolation and Characterization of the High Silicate and Phosphate Solubilizing Novel Strain Enterobacter ludwigii GAK2 that Promotes Growth in Rice Plants. Agronomy 9: 144. https://doi.org/10.3390/agronomy9030144

Lestiyani A, Wibowo A, Subandiyah A. 2021. Pathogenicity and Detection of Phytohormone (Gibberellic Acid and Indole Acetic Acid) Produced by Fusarium spp. that Causes Twisted Disease in Shallot. J of Plant Protect 5(1): 24–33. https://doi.org/10.25077/jpt.5.1.24-33.2021

Lestiyani A, Wibowo A, Subandiyah S, Gambley C, Ito S, Harper S. 2016. Identification of *Fusarium* spp., The Causal Agent of Twisted Disease of Shallot. Acta Hortic 155–160. https://doi.org/10.17660/ActaHortic.2016.1128.22

Lian B, Chen Y, Zhu L. 2008. Effect of microbial weathering on carbonate rocks. Earth Sci Front 15: 90–99. https://doi.org/10.1016/S1872-5791(09)60009-9

Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Liang Y, Wong JW, Wei L. 2005. Silicon-mediated enhancement of cadmium tolerance in maize (Zea mays L.) grown in cadmium contaminated soil. Chemosphere, 58(4): 475–483. https://doi.org/10.1016/j.chemosphere.2004.09.034

Limon MC, Roberto RO, Avalos J. 2010. Bikaverin production and applications. Appl Microb Biotech 87: 21–29. https://doi.org/10.1007/s00253-010-2551-1

Liu W, Xu X, Wu S, Yang Q, Luo Y, Christie P. 2006. Decomposition of silicate minerals by Bacillus mucilaginosus in liquid culture. Env Geochem Health 28: 133–140. https://doi.org/10.1007/s10653-005-9022-0

Loper JE, Gross H. 2007. Genomic analysis of antifungal metabolite production by *Pseudomonas fluorescens* Pf-5. Eur J Plant Pathol 119: 265-278. https://doi.org/10.1007/s10658-007-9179-8

Loper JE, Henkels MD. 1999. Utilization of heterologous siderophores enhances levels of iron available to *Pseudomonas putida* in the rhizosphere. Appl Environ Microbiol 65: 5357-5363. https://doi.org/10.1128/AEM.65.12.5357-5363.1999

Louden BC, Haarmann D, Lynne am. 2011. Use of Blue Agar CAS Assay for Siderophore Detection. Journal of microbioloby and biology education 12(1): 51-53. https://doi.org/10.1128/jmbe.v12i1.249

Lugtenberg B, Kamilova F. 2009. Plant-growth promoting rhizobacteria. Ann Rev Microbiol 63: 541-556. https://doi.org/10.1146/annurev.micro.62.081307.162918

Ma JF, Yamaji N. 2006. Silicon Uptake and Accumulation in Lower Plants. Trends in Plant Science (11): 392- 397. https://doi.org/10.1016/j.tplants.2006.06.007

Magdoff F, Es VH. 2010. Building Soils for Better Crops: Sutainable Soil Management. (3rd edn.), Sustainable Agriculture Research and Education: USA: 294p.

Mahmood S, Daur I, Al-Solaimani GS, Ahmad S, Madkour HM, Yasir M, Hirt H, Ali S, Ali Z. 2016. Plant growth promoting rhizobacteria and silicon synergistically enhance salinity tolerance of mung bean. Front Plant Sci 7: 876. https://doi.org/10.3389/fpls.2016.00876

Mathesius U. 2008. Goldacre paper: Auxin: At the root of nodule development?. Funct Plant Biol 35: 651–668. https://doi.org/10.1071/FP08177

Mayz J, Manzi L, Lárez A. 2013. Isolation, characterization and identification of hydrocarbonoclastic Pseudomonas species inhabiting the rhizosphere of Crotalaria micans Link. Euro J Exp Bio 3(5): 313-321.

McNabb DH, Startsev AD. 2009. Effects of compaction on aeration and morphology of boreal forest soils in Alberta, Canada. Canadian Journal of Soil Science. 89(1):45–56. https://doi.org/10.4141/CJSS06037

Medentsev AG, Arinbasarova AI, Akimenko VK. 2005. Biosynthesis of naphthoquinone pigments by fungi of the genus *Fusarium*. Prikl Biokhim Mikrobiol 41:573–7. https://doi.org/10.1007/s10438-005-0091-8

Meziane H, Sluis IVDR, Loon LCV, Hofte M, Bakker PAHM. 2005. Determinants of Pseudomonas putida WCS358 involved in inducing systemic resistance in plants. Molecular plant pathology 6(2): 177-185. doi:10.1111/J.1364-3703.2004.00276.X

Michielse CB, Rep M. 2009. Pathogen profile update: *Fusarium oxysporum* Mol. Plant microorganisms against *Colletotrichum acutatum* and *Colletotrichum gloeosporioides*. Arch Biol Sci 62(3): 611-623. https://doi.org/10.1111/J.1364-3703.2009.00538.X

Minh NP. 2019. Technical Factors Affecting To Pickle Shallot *(Allium Ascalonicum)* Fermentation. J Pharm Sci & Res 11(3): 879–881.

Mishra P, Mishra J, Dwivedi SK, Arora MK. 2020. Microbial Enzymes in Biocontrol of Phytopathogens. Microbial Enzymes: Roles and Applications in Industries, Microorganisms for Sustainability 11. https://doi.org/10.1007/978-981-15-1710-5_10

Mohite B. 2013. Isolation and characterization of indole acetic acid (IAA) producing bacteria from rhizospheric soil and its effect on plant growth. J Soil Sci Plant Nutr 13: 638–649. https://doi.org/10.4067/S0718-95162013005000051

Mursyida E, Mubarik NR, Tjahjoleksono A. 2015. Selection and identification of phosphate-potassium solubilizing bacteria from the area around the limestone mining in Cirebon Quarry. Res J Microbiol 10: 270–279. https://doi.org/10.3923/jm.2015.270.279

Nakata Y, Ueno M, Kihara J, Ichii M, Taketa S, Arase S. 2008. Rice blast disease and susceptibility to pests in a silicon uptake deficient mutant. Crop Protection 27: 865-868. https://doi.org/10.1016/j.cropro.2007.08.016

Naureen Z, Aqeel M, Hassan MN, Gilani SA, Bouqellah N, Mabood F, Hussain J, Hafeez FY. 2015. Isolation and screening of silicate bacteria from various habitats for biological control of phytopathogenic fungi. Am J Plant Sci 6: 2850–2859. http://doi.org/10.4236/ajps.2015.618282

Naureen Z, Hafeez FY, Hussain J, Al Harrasi A, Bouqellah N, Roberts MR. 2015. Suppression of Incidence of *Rhizoctonia solani* in Rice by Siderophore Producing Rhizobacterial Strains Based on Competition for Iron. European Scientific Journal 11: 186-207.

Naureen Z, Price AH, Wilson MJ, Hafeez FY, Roberts MR. 2009. Suppression of Rice Blast Disease by Siderophore-Producing Bioantagonistic Bacterial Isolates Isolated from the Rhizosphere of Rice Grown in Pakistan. Crop Protection 28: 1052-1060. https://doi.org/10.1016/j.cropro.2009.08.007

Ng LC, Anuar SNA, Jong JW, Elham MSH. 2016). Phytobeneficial and plant growth-promotion properties of silicon-solubilising rhizobacteria on the growth and control of rice sheath blight disease. Asian J Plant Sci 15: 92-100. doi:10.3923/ajps.2016.92.100

Nimchuk Z, Eulgem T, Holt BE, Dangl JL. 2003. Recognition and response in the plant immune system. Annu Rev Genet 37: 579-609. https://doi.org/10.1146/annurev.genet.37.110801.142628

Nudel C, Gonzalez RI, Castaneda NI, Mahler G, Actis LA (2001) Influence of iron on growth, production of siderophore compounds, membrane proteins, and lipase activity in *Acinetobacter calcoaceticus* BD 413. Microbiol Res 155(4):263-269. http://doi.org/10.1016/S0944-5013(01)80003-3

Pahari A, Pradhan A, Nayak SK, Mishra, BB. 2017. Bacterial siderophore as a plant growth promoter. Microbial Biotechnology 7: 163-180. https://doi.org/10.1007/978-981-10-6847-8_7

Park YG, Mun BG, Kang SM, Hussain A, Shahzad R, Seo CW, Kim AY, Lee SU, Oh KY, Lee DY, Lee IJ, Yun BW. 2017. *Bacillus aryabhattai* SRB02 tolerates oxidative and nitrosative stress and promotes the growth of soybean by modulating the production of phytohormones. PLoS One 12(3): e017320. https://doi.org/10.1371/journal.pone.0173203

Parolo ME, Fernandez LG, Zajonkovsky I, Sanchez MP, Baschini M. 2011. Antibacterial Activity of Materials Synthesized From Clay. Sciences Against Microbial Pathogens.

Patel S, Gupta RS (2020) A phylogenomic and comparative genomic framework for resolving the polyphyly of the genus Bacillus: Proposal for six new genera of Bacillus species, Peribacillus gen. nov., Cytobacillus gen. nov., Mesobacillus gen. nov., Neobacillus gen. nov., Metabacillus gen. nov. and Alkalihalobacillus gen. nov. Int J Syst Evol Microbiol 70(1): 406-438. https://doi.org/10.1099/ijsem.0.003775

Pathak R, Paudel V, Shrestha A, Lamichhane J, Gauchan DP. 2017. Isolation Of Phosphate Solubilizing Bacteria And Their Use For Plant Growth Promotion In Tomato Seedling And Plant. J of Sci Engin and Tech 13(2):61-70. http://dx.doi.org/10.3126/kuset.v13i2.21284

Patil S, Bheemaraddi MC, Shivannavar CT, Gaddad CM. 2014. Biocontrol Activity of Siderophore Producing *Bacillus subtilis* CTS-G24 Against Wilt and Dry Rot Causing Fungi in Chickpea. IOSR Journal of Agriculture and Veterinary Science (IOSR-JAVS) 7(9): 63-68. https://doi.org/10.9790/2380-07916368

Patil S, VB. Nargund, Santosh RM. 2016. Influence of Wheater Parameters On Development of Twister Disease of Onion. The Bioscan 11(4): 2821 – 2824. https://doi.org/10.20546/ijcmas.2018.712.413

Patten CL, Glick BR. 2002. Role of *Pseudomonas putida* indoleacetic acid in development of the host plant root system. App Environ Microbiol 68(8): 3795–3801. https://doi.org/10.1128/AEM.68.8.3795-3801.2002

Peera SKPG, Balasubramaniam P, Mahendran PP. 2016. Effect of silicate solubilizing bacteria and fly ash on silicon uptake and yield of rice under lowland ecosystem. J Appl & Nat Sci 8(1): 55–59. https://doi.org/10.31018/jans.v8i1.746

Pereira SIA, Monteiro C, Vega AL, Castro PML. 2016. Endophytic cultur- able bacteria colonizing Lavandula dentata L. plants: isolation, characterization and evaluation of their plant growth-promoting activities. Ecol Eng 87: 91–97. https://doi.org/10.1016/j.ecoleng.2015.11.033

Perez-Miranda S, Cabirol N, George-Tellez R, Zamudio-Rivera LS, Fernandez LZ. 2007. O-CAS, a fast and universal method for siderophore detection. J Microb Metd 70: 127-131. https://doi.org/10.1016/j.mimet.2007.03.023

Pozza EA, Pozza AAA, Botelho DMS. 2015. Silicon in plant disease control. Rev Ceres Viçosa 62(3): 323-331. http://doi.org/10.1590/0034-737X201562030013

Pramono H. 2007. Fisiografi Parangtritis dan Sekitarnya. Geomedia 5(1): 66-78. https://doi.org/10.21831/gm.v5i1.14202

Prihatiningsih N, Djatmiko HA, Lestari P. 2017. Aktivitas Siderofor *Bacillus Subtilis* Sebagai Pemacu Pertumbuhan Dan Pengendali Patogen Tanaman Terung. J. HPT Tropika 17(2): 170 - 178. https://doi.org/10.23960/j.hptt.217170-178

Puspita F, Hadiwiyono, Poromorto SH, Roslim DI. 2017. Morphology, Physiology And Molecular Characteristics Of Oil Palm (Elaeis Guineensis Jacq.) Endophytic Bacillus Sp. Inter J of Biosci and Biotech 5(1): 80-91. https://doi.org/10.24843/IJBB.2017.v05.i01.p07

Radhakrishnan **M,** Samshath **KJ,** Balagurunathan **R**. 2014. Hydroxamate Siderophore from *Bacillus* sp SD12 Isolated from Iron Factory Soil. Curr World Envir 9(3): 990-993. http://doi.org/10.12944/CWE.9.3.53

Rajiman, Yudono P, Sulistyaningsih E, Hanudin E. 2008. Pengaruh pembenah tanah terhadap sifat fisik tanah dan hasil bawang merah pada lahan pasir pantai bugel kabupaten kulon progo. Agrin 12(1).

Rao GB, Pi PY, Syriac EK. 2017. Silicon nutrition in rice: A review J Pharmacogn Phytochem (6): 390–392.

Richmond KE, Sussman M. 2003. Got silicon? The non-essential beneficial plant nutrient. Current Opinion in Plant Biology (6): 268-272. https://doi.org/10.1016/S1369-5266(03)00041-4

Rodrigues FA, Dallagnol LJ, Duarte HSS, Datnoff LE. 2015. Silicon control of foliar diseases in monocots and dicots. In: Silicon and Plant Disease. Rodrigues F. A., and L. E. Datnoff (eds.). Springer 67–108. https://doi.org/10.1007/978-3-319-22930-0_4

Rodrigues FA, Datnoffff LE, Korndorfer GH, Seebold KW, Rush MC. 2001. Effffect of silicon and host resistance on sheath blight development in rice. Plant Dis (85): 827–832.

Roos J. Hopkins R, Kvarnheden A, Dixelius C. 2011. The impact of global warming on plant diseases and insect vectors in Sweden Eur J Plant Pathol 129(1): 9-19. http://doi.org/10.1007/s10658-010-9692-z

Safitri YA, Hasanah U, Salamiah, Samharinto, Pramudi MI. 2019. Distribution of major diseases of shallot in South Kalimantan, Indonesia. Asian J Agric 3: 33-40. https://doi.org/10.13057/asianjagric/g030201

Sahebi M, Hanafi MM, Akmar SN, Rafii A, Azizi MY, Tengoua PFF, Azwa NM, Shabanimofrad M. 2015. Importance of silicon and mechanisms of biosilica formation in plants. BioMed Research Inter 1–16. https://doi.org/10.1155/2015/396010

Sakr N. 2016. The role of silicon (Si) in increasing plant resistance against fungal diseases. Hellenic Plant Protection Journal 9(1): 1–15. https://doi.org/10.1515/hppj-2016-0001

Sandhya V, Ali SKZ, Minakshi G, Reddy G, Venkateswarlu B. 2009. Allevation of drought stress effects in sunflower seedlings by the exopolysaccharides producing

Pseudomonas putida strain GAP-P45. Biol Fertil Soils 46:17-26. https://doi.org/10.1007/s00374-009-0401-z

Santi LP, Goenadi DH. 2017. Solubilization of silicate from quartz mineral by potential silicate solubilizing bacteria. Menara Perkebunan 85(2): 95-104. doi:10.22302/iribb.jur.mp.8v5i2.247

Saraf M, Pandya U, Thakkar A. 2014. Role of allelochemicals in plant growth promoting rhizobacteria for biocontrol of phytopathogens. Microbiol Res (169): 18-29. http://doi.org/10.1016/j.micres.2013.08.009

Sari V, Miftahudin, Sobir. 2017. Keragaman genetik bawang merah (*Allium cepa* L.) berdasarkan marka morfologi dan ISSR. Jurnal Agronomi Indonesia. 45: 175-181. http://doi.org/10.24831/jai.v45i2.11665

Sathe AP, Kumar A, Mandlik R. 2021. Role of silicon in elevating resistance against sheath blight and blast diseases in rice (Oryza sativa L.). Plant Physiology and Biochemistry 166: 128–139. https://doi.org/10.1016/j.plaphy.2021.05.045

Schwyn B, Neilands JB. 1987. Universal chemical assay for the detection and determination of siderophores. Anal Biochem 160: 47–56. http://doi.org/10.1016/0003-2697(87)90612-9

Scott JR, Barnett TC. 2006. Surface Proteins of Gram-Positive Bacteria and How They Get There. Annu Rev Microbiol 60: 397–423. https://doi.org/10.1146/annurev.micro.60.080805.142256

Shabbir I, Samad MYA, Othman R, Wong MY, Sulaiman Z, Jaafar NM, Bukhari SAH. 2020. Silicate solubilizing bacteria UPMSSB7, a potential biocontrol agent against white root rot disease pathogen of rubber tree. J of Rubber Res (23): 227–235. https://doi.org/10.1007/s42464-020-00052-w

Shaik ZA, Sandhya V, Grover M, Linga VR, Bandi V. 2011. Effect of inoculation with a thermotolerant plant growth growth promoting *Pseudomonas putida* strain AKMP7 on growth of wheat (*Triticum* spp.) under heat stress. J Plant Interact 6(4): 239-246. https://doi.org/10.1080/17429145.2010.545147

Sharifi-Rad J, Mnayer D, Tabanelli G, Stojanović-Radić ZZ, Sharifi-Rad M, Yousaf Z, Vallone L, Setzer WN, Iriti M. 2016. Plants of the genus Allium as antibacterial agents: from tradition to pharmacy. Cellular and Molecular Biology 62(9): 57–68. https://doi.org/10.14715/cmb/2016.62.9.10

Sharma A, Johri BN. 2003. Growth promoting influence of siderophore-producing *Pseudomonas* strains GRP3A and PRS9 in maize (*Zea mays* L.) under iron limiting conditions. Microbiol Res 158(3): 243–248. http://doi.org/10.1078/0944-5013-00197

Sheng XF, Zhao F, He LY, Qiu G, Chen L. 2008. Isolation and characterization of silicate mineral-solubilising *Bacillus globisporus* Q12 from the surface of weathered feldspar. Can J Microbiol (54): 1064–1068. https://doi.org/10.1139/W08-089

Shin SH, Lim Y, Lee SE, Yang NW, Rhee JH. 2001. CAS agar diffusion assay for the measurement of siderophores in biological fluids. J Microbiol Meth 44(1): 89-95. http://doi.org/10.1016/S0167-7012(00)00229-3

Simonsson M, Andersson S, Andrist-Rangel Y, Hillier S, Mattsson L, Oborn I. 2007. Potassium release and fxation as a function of fertilizer application rate and soil parent material. Geoderma 140: 188–198. https://doi.org/10.1016/j.geoderma.2007.04.002

Sintayehu A, Sakhuja PK, Fininsa C, Ahmed S. 2011. Management of Fusarium basal rot (Fusarium oxysporum f. sp. cepae) on shallot through fungicidal bulb treatment. Crop Protection, 30(5): 560–565. https://doi.org/10.1016/j.cropro.2010.12.027

Smith RA, Calviello CM, DerMarderosian A, Palmer ME. 2000. Evaluation of antibacterial activity of belizean plants: an improved method. Pharm Biol 38: 25-29. https://doi.org/10.1076/1388-0209(200001)3811-BFT025

Sommer M, Kaczorek D, Kuzyakov Y, Breuer J. 2006. Silicon pools and fuxes in soils and landscapes—a review. J Plant Nutr Soil Sci (169): 310–329. https://doi.org/10.1002/jpln.200521981

Soytong K, Srinon W, Ratanacherdchai K, Kanokmedhakul S, Kanokmedhakul K. 2005. Application of antagonistic fungi to control anthracnose disease of grape. Agric Technol 1: 33–42.

Spaepen S, Vanderleyden J, Remans R. 2007. Indole-3-acetic acid in microbial and microorganism-plant signaling. FEMS Microbiol Rev 31: 425–448. https://doi.org/10.1111/j.1574-6976.2007.00072.x

Spaepen S, Vanderleyden J. 2011. Auxin and plant-microbe interactions. Cold Spring Harb Perspect Biol 3: a001438. https://doi.org/10.1101/cshperspect.a001438

Srivastava S, Bist V, Srivastava S, Singh PC, Trivedi PK, Asif MH *et al*. 2016. Unraveling aspects of *Bacillus amyloliquefaciens* mediated enhanced production of rice under biotic stress of *Rhizoctonia solani*. Front Plant Sci 7: 587. https://doi.org/10.3389/fpls.2016.00587

Sturz AV, Christie BR. 2003. Beneficial microbial allelopathies in the root zone: the management of soil quality and plant disease with rhizobacteria. Soil Tillage Research 72: 107-123. https://doi.org/10.1016/S0167-1987(03)00082-5

Sudha M, Shyamala GR, Prbhavati P, Astapritya P, Yamuna DY, Saranya A. 2012. Production and optimization of Indole acetic acid by indigenous microflora using agro waste as substrate. Pakistan J of Bio Sci 15: 39-43. https://doi.org/10.3923/pjbs.2012.39.43

Sulizah A, Rahayu YS, Dewi SK. 2018. Isolation and characterization of silicate-solubilizing bacteria from paddy rhizosphere (*Oryza sativa* L.). J of Physics: Conf Ser 1108. https://doi.org/10.1088/1742-6596/1108/1/012046

Sumardiyono C. 2008. Resistance of Fungi Against Fungicides in Indonesia. Jurnal Perlindungan Tanaman Indonesia 14(1): 1–5. doi:10.22146/jpti.11869

Supyani, Poromarto SH, Supriyadi, Hadiwiyono. 2021. Moler Disease of Shallot in the Last Three Years at Brebes Central Java: The Intensity and Resulting Yields Losses is Increasing. IOP Conf. Series: Earth and Environ Sci 810. https://doi.org/10.1088/1755-1315/810/1/012004

Suslow TV, Schroth MN, Isaka M. 1982. Application of a Rapid Method for Gram Differentiation of Plant Pathogenic and Saprophytic Bacteria Without Scanning. The American Phytopathol Soc 72(7).

Sutariati GAK, Khaeruni A, Madiki A, Mudi L, Aco A , Ramadhani SA, Adri RM, Mantja K. 2021. Effectiveness of endo-rhizobacteria as growth promoters and biological control of moler disease in shallots (*Allium ascalonicum* L.). IOP Conf. Series: Earth and Environ Sci. https://doi.org/10.1088/1755-1315/681/1/012028

Thanassi DG, Bliska JB, Christie PJ. 2012. Surface Organelles Assembled by Secretion Systems of Gram-Negative Bacteria: Diversity in Structure and Function. FEMS Microbiol Rev 36: 1046–1082. https://doi.org/10.1111/j.1574-6976.2012.00342.x

Umesha S, Richardson PA, Kong P, Hong CX. 2008. A novel indicator plant to test the hypersensitivity of phytopathogenic bacteria. J of Microbiol Methods 72:95–97. https://doi.org/10.1016/j.mimet.2007.11.002

Uroz S, Calvaruso C, Turpault MP, Frey-Klett P. 2009. Mineral weathering by bacteria: Ecology, actors and mechanisms. Trends Microbiol 17: 378–387. https://doi.org/10.1016/j.tim.2009.05.004

Van BJ, De Vleesschauwer D, Hofte M. 2013. Towards establishing broad-spectrum disease resistance in plants: silicon leads the way. Journal of Experimental Botany 64 (5): 1281–1293. https://doi.org/10.1093/jxb/ers329

Vasanthi N, Saleena LM, Raj SA. 2012. Silicon in Day Today Life. World Applied Sci J 17: 1425-1440.

Vasanthi N, Saleena LM, Raj SA. 2013. Evaluation of media for isolation and screening of silicate solubilising bacteria. Int J Curr Res 5(2): 406-408.

Vasanthi N, Saleena LM, Raj SA. 2018. Silica Solubilization Potential of Certain Bacterial Species in the Presence of Different Silicate Minerals. Silicon (10): 267–275. https://doi.org/10.1007/s12633-016-9438-4

Verma P, Yadav AN, Khannam KS; Saxena AK, Suman A. 2017. Potassium-solubilizing microbes: Diversity, distribution, and role in plant growth promotion. In DG Panpatte et al(eds.) Microorganisms for Green Revolution, Microorganisms for Sustainability 6. pp 125–149. https://doi.org/10.1007/978-981-10-6241-4_7

Verma V, Joshi K, Mazumdar B. 2012. Study of Siderophore Formation in Nodule-Forming Bacterial Species. Res J of Chem Sci 2(11): 26-29.

Vivancos J, Labbe C, Menzies JG, Belanger RR. 2015. Silicon-mediated resistance of Arabidopsis against powdery mildew involves mechanisms other than the salicylic acid (SA)-dependent defence pathway. Mol Plant Pathol 16(6): 572–582. https://doi.org/10.1111/mpp.12213

Vyas P, Gulati A. 2009. Organic acid production in vitro and plant growth promotion in maize under controlled environment by phosphate-solubilizing fluorescent Pseudomonas. BMC Microbiol 9: 174. https://doi.org/10.1186/1471-2180-9-174

Wahyuni ET, Triyono S, Suherman. 2012. Penentuan Komposisi Kimia Abu Vulkanik Dari Erupsi Gunung Merapi (Determination of Chemical Composition of Vulcanic Ash from Merapi Mountain Eruption). J. Manusia dan Lingkungan 19(2): 150-159. doi:10.22146/jml.18531

Wang H, Liu R, You MP, Barbetti MJ, Chen Y. 2021. Pathogen biocontrol using plant growth-promoting bacteria (PGPR): role of bacterial diversity. J Microorganisms 9 (1988): 1-18. https://doi.org/10.3390/microorganisms9091988

Wang M, Gao L, Dong S, Sun Y, Shen Q and Guo S. 2017. Role of Silicon on Plant–Pathogen Interactions. Front Plant Sci 8: 701. https://doi.org/10.3389/fpls.2017.00701

Wees SCV, Pieterse SCM, Trijssenaar CMJ, Van't Westende A, Hartog YAM, Loon VLC. 1997. Differential induction of systemic resistance in Arabidopsis by biocontrol bacteria. Mol Plant–Microbe Interact 10: 716–724. https://doi.org/10.1094/MPMI.1997.10.6.716

Whipps JM. 2001. Microbial interactions and biocontrol in the rhizosphere. Journal of Experimental Botany 52: 87-511. https://doi.org/10.1093/jexbot/52.suppl_1.487

Yadav S, Kaushik R, Saxena AK, Arora DK. 2011. Diversity and phylogeny of plant growth-promoting bacilli from moderately acidic soil. J Basic Microb 51(1): 98–106. https://doi.org/10.1002/jobm.201000098

Yoshida S, Ohnishi Y, Kitagishi K. 1962. Chemical forms, mobility and deposition of silicon in rice plant. Soil Science and Plant Nutrition 8: 107-113. https://doi.org/10.1080/00380768.1962.10430992

Zargar M, Mahajan R, Bhat JA, Nazir M, Deshmukh R. 2019. Role of silicon in plant stress tolerance: opportunities to achieve a sustainable cropping system 3. Biotech 9(3): 73. https://doi.org/10.1007/s13205-019-1613-z

Zhu Z, Wei G, Li J, Qian Q, Yu J. 2004. Silicon alleviates salt stress and increases antioxidant enzymes activity in leaves of salt-stressed cucumber (Cucumis sativus L.). Plant Sci 167: 527–533. https://doi.org/10.1016/j.plantsci.2004.04.020

Zivkovic V, Stojanovic Z, Ivanovic. 2010. Screening of antagonistic activity of Screening of antagonistic activity of microorganisms against *Colletotrichum acutatum* and *Colletotrichum gloeosporioides*. Arch Biol Sci 62(3): 611-623. https://doi.org/10.2298/ABS1003611Z