

## DAFTAR PUSTAKA

- Abri., Kuswinanti, T, Sengin, E. L., and Sjahrir R 2015 Production of indole acetic acid hormone from fungal isolates collected from rhizosphere of aromatic rice in tana toraja *Int. J. Curr. Res.Biosci. Plant Biol.* 2 198-201
- Adomako, J., Kwoseh, C., Moses, E and Ruth N.A. 2018. Variations in morphological and molecular characteristics of *Phytophthora colocasiae* population causing leaf blight of taro in Ghana. *Archives of Phytopathology and Plant Protection*. <https://doi.org/10.1080/03235408.2018.1550846>
- Afzal, H., Shazad, S., and Qamar, S. 2013. Morphological Identification of *Aspergillus* Spesies From The Soil of Larkana District (Sindh Pakistan). *Asian J Agri Biol*, 2013, 1(3):105-117.
- Agrios, G.N. 2005. *Plant Pathology*. 5th Edition. Burlington: Elsevier Academic Press.
- Akinyele, J.B., Olaniyi, O. 2013. Investigation of the cellulases production by *Aspergillus niger* NSPR002 in different cultivation condition. *Innov Romanian Food Biotechnol* 13: 71-79.
- Alexander ,M. 1977 . *Introduction to Soil Microbiology*. 2nd edition. John Wiley and Sons. New York.
- Ambuse, M.G., Bhale, U.N. 2015. Persuade of *Trichoderma* spp against *Phytophthora colocasiae* inciting blight of *Colocasia esculenta* L. 2015. *Int. J. Pure App. Biosci* 3 (1): 271-274.
- Arora,N.K., and Verma,M. 2017. Modified microplate method for rapid and efficient estimation of siderophore produced by bacteria. *3 Biotech* 7(381).
- H., Zainol, N. 2018. Isolation and identification of soil fungi isolates from rest soil for flooded soil recovery. *IOP Conferences Series : Material science and Engineering*. 342 012028.



Asmaliyah dan Rostiwati, T., Pengaruh Pengaturan Jarak Tanam terhadap perkembangan serangan hama dan penyakit pulai darat (*Alstonia angustiloba*). Effect of Plant Spacing Setting to Developing Attack of Pest and Disease of Pulai Darat (*Alstonia angustiloba*). Jurnal Penelitian Hutan Tanaman Vol. 11 No. 3 : 41-50.

Baker, K. F dan R. J. Cook. 1974. *Biological control of microbial plant pathogen*. San Fransisco: Freeman WH.

Burgess.1970. *The Soil Mikroflora, its Nature in Biology*. In K.F. Baker and W. C. Synder (eds). Ekology of Soil Borne Plant Pathogens. Prelude to Biological Kontrol. University of California Barkelay. p 21-32.

Barnett, H.L. 1960. Illustrated Genera Of Imperfect Fungi. Departement of Plant Pathology, Bacteriology, and Entomology West Virginia University. Morgantown. West Virginia.

Birader R.S., Venkateshwaralu T, Hrishi N. 1978. Leaf area estimation in colocasia. J Root Crops. 4:51–53.

Bandyopadhyay,R. and Sharma, K. 2011. First Report of Taro (*Colocasia esculenta*) Leaf Blight Caused by *Phytophthora colocasiae* in Nigeria. Plant Disease Vol 95, No 5 p.618. Doi : <http://dx.doi.org/10.1094/PDIS-12-10-0890>

Bartnick, G. S. 1968. Cell wall chemistry, morphogenesis, and taxonomy of fungi. Annu Rev Microbiol 22:87–108

Bilal, L., Hamayun, M., Gul, H., Iqbal, A., Ullah, I., Lee, In Jung. and Hussain, A. 2018. Plant Growth Promoting Endophytic Fungi *Aspergillus fumigatus* TS 1 and *Fusarium proliferatum* BRL1 produce gibberellins and regulates plant endogenous hormones. Symbiosis 76 : 117-127. <http://doi.org/10.1007/s13199-018-0545-4>

Blaettler, K.G., 2019. How do stomata work in photosynthesis (online) <https://sciencing.com/do-stomata-work-photosynthesis-5498075>.

Bose, A., Shah, D. and Keharia, H. 2013. 'Production of indole-3-acetic-acid (IAA) by the white rot fungus *Pleurotus ostreatus* under submerged condition of *Jatropha* seedcake', *Mycology*. Taylor & Francis, 4(2), pp. 103–111. doi: 10.1080/21501203.2013.823891.



- Bottini, R., Piccoli. and Cassan, F.D. 2004. Gibberellin production by bacteria and its involvement in plant growth promotion and yield increase. *Applied Microbiology and Biotechnology* 65: 497-503. DOI: 10.1007/s00253-004-1696-1
- ,Bybordi, A. and M.J. Malakouti, 2003. The Effect of Various Rates of Potassium, Zinc, and Copper on the Yield and Quality of Onion Under Saline Conditions In Two Major Onion Growing Regions of East Azarbayjan. *Agric. Sci. and Technol.* 17:43-52.
- Butler, E.J.; Kulkarni, G.S. 1913. *Colocasia* blight caused by *Phytophthora colocasiae* Rac. *Mem. Dep. Agr. Ind. Bot. Ser, 5*, 233–261.
- Brooks, F.E. 2005. Taro leaf blight. *Plant Health Instr*, doi:10.1094/PHI-I-2005-0531-01.
- Bullerman, L.B., 2003. Penicillium. *Encyclopedia of Food Science and Nutrition* (Second Edition)
- Carpenter, M.A., Ridgway, H.J., Stringer, A.M., Hay, A.J. and Stewart, A. 2008. Characterisation of a *Trichoderma hamatum* monooxygenase gene involved in antagonistic activity against fungal plant pathogens. *Curr Genet* 53:193-205.
- Choi, Y.W., Hodgkiss, I.J and Hyde, K.D. 2005. Enzyme production by endophytes of *Brucea javanica*. *Journal of Agricultural Technology*.
- Cooke D.E.L, Duncan, J. 1997. Phylogenetic analysis of *Phytophthora* species based on the ITS1 and ITS2 sequences of the ribosomal DNA. *Mycol Res.* 101:667-677
- Carter, J.S. 1997. *Fungi*. [Online]. <http://biology.clc.uc.edu/courses/bio106/fungi.htm>
- Chanway, C.P. 1997. Inoculation of Tree Roots with Plant Growth Promoting Bacteria: *An Emerging technology for reforestation*, *Forest Science* 43: 96-112.
- h, M., dan Lumyong, S. Screening and Optimization of Indole-3-Acetic acid Production and Phosphate Solubilization from Rhizobacteria Aimed at Improving Plant Growth. *Curr Microbiol.* Vol. 62 (2011) 173-181.



- Djazuli M. 1994 Taro genetic resources and use in Indonesia *In: Proceeding of International Workshop on Genetic Resources: Root and Tuber Crops* p159 March 15-17, 1994. MAFF Research Council, Tsukuba Japan
- Durham, N. C. 2004. Armies of fighting fungi protect chocolate trees. [www.rpi.edu/ajayan/locker/publications/natureajayanjan202004.pdf](http://www.rpi.edu/ajayan/locker/publications/natureajayanjan202004.pdf).
- Druzhinina, I. S., Kopchinskiy, A. G., Komo , M., Bissett, J., Szakacs, G., & Kubicek, C. P. 2005. An oligonucleotide barcode for species identification in *Trichoderma sp* and *Hypocrea sp*. *Fungal Genetics and Biology* 42(10), 813-828
- Dash S, Mohapatra AK and Gupta N. 2013. Growth response of *Dalbergia sissoo* Roxb. To mineral solubilizing bacteria and fungi in nursery conditions. *Tropical Ecology* 54(1): 109–115.
- Dehgahi, R., Subramaniam, S., Zakaria, L., Joniyas, A., Firouzjahi, F.B., Haghnama, K. and Razinataj, M. 2015. Review of Research on Fungal Pathogen Attack and Plant Defense Mechanism against Pathogen. *International Journal of Science Research in Agricultural Sciences*, 2(8), pp197-208.
- Dennis, C and Webster, J. 1971. Antagonistic properties of Species-Groups of *Trichoderma*. *Trans. Br.mycol.Soc.* 57(3), 363-369.
- Drent, A and Sendall, B. 2001. Practical guide to detection and identification of phytophthora. CRC for Tropical Plant Protection. Brisbane Australia.
- Djafarudin. 2004. *Dasar-dasar pengendalian penyakit tanaman*. Jakarta: Bumi Aksara.
- Danielson, R.M. and Davey, C.B. 2002. Non nutritional factors affecting the growth of *Trichoderma* in culture. *Soil Biol Chem* 5:495-504.
- Economic Review. 2010. *Talas Jepang Satoimo, Komoditi Pangan Bernilai Ekspor*. Diakses [http://m.kompasiana.com/masfathan66/talas-jepang-satoimo-komoditi-pangan-bernilai-kspor\\_567a33e962afbd2e07d37752](http://m.kompasiana.com/masfathan66/talas-jepang-satoimo-komoditi-pangan-bernilai-kspor_567a33e962afbd2e07d37752).

C. and Olof K. Riberio. 1996. *Phytophthora Disease Wordwode*. APS Press. St. Paul Minnesota, Pp 299-300.



Ellis, D. 2018. *Fusarium*. University of Adelaide. Australia (online) <https://mycology.adelaide.edu.au/descriptions/hyphomycetes/fusarium/>

El Katatny, M.H., Somitsch, W., Robra, K.H., El-Katatny, M.S and Gilbitz, G.M. 2000. Production of Chitinase and  $\beta$  1,3 -glucanase by *Trichoderma harzianum* for Control of the Phytopathogenic Fungus *Sclerotium rolfsii*. *Food Technol Biotechnol* 38: 173–180.

Frankenberger, J.,W.T., and Arshad, M. 1995. *Phytohormones in soils. Microbial production and function*. Marcel Dekker, Inc. New York. pp. 503

Ferramola, M. I. S. et.al. 2013. *The use of siderophores for improving the control of postharvest diseases in stored fruits and vegetables*. Microbial pathogens and strategies for combating them: science, technology and education, Formatex: 1385-1394

Fokkema, N.J. 1973. The role of Saprophytic fungi in antagonism against *Drechslera sorokiniana* (*Helminthosporium sativum*) on agar plates and on rye leaves with pollen. *Physiological Plant Pathology* 3, 195-205

Fullerton, R.; Tyson, J. Overview of leaf diseases of taro. In *Proceedings of Taro Pathology and Breeding Workshop*, Alafua Campus, Samoa, 5–7 November 2001; pp. 4–7.

Gultom, J.M., 2008. Pengaruh Pemberian Beberapa Jamur Antagonis dengan Berbagai Tingkat Konsentrasi Untuk Menekan Perkembangan Jamur *Phytium* sp Penyebab Rebah Kecambah pada Tanaman Tembakau (*Nicotiana tabaccum* L.) <http://repository.usu.ac.id.pdf>.

George, E.F and Sherrington, P.D. 1984. *Plant Propagation by Tissue Culture, Handbook and Directory of Comercial Laboratoryes*. Easter Press, Englan, hal : 60-63

Gollifer, D.E., and Brown, J.F. 1974. *Phytophthora leaf blight of Colocasia esculenta in the British Solomon Islands*. Papua New Guinea Agricultural Journal 25: 6-11.

, M.L, Meidl, E.J and Plessner O. 1990. ,Citrate as a siderophore in *radyrhizobium japonicum*,*Journal of Bacteriology*, 172: 3298–3303,



Gautam A. K. and Bhadauria R. 2012. Characterization of *Aspergillus* species associated with commercially stored triphala powder. *African Journal of Biotechnology* Vol. 11(104), pp. 16814-16823. DOI: 10.5897/AJB11.2311

George, A., Jeeva, M.L., Nath, V.S., Sreelatha, G.L., Sujina, G. 2018. Simple and efficient genomic DNA extraction protocol for molecular characterisation of *Phytophthora colocasiae* causing taro leaf blight . *Archives of PhytoPathology and Plant Protection*. <https://doi.org/10.1080/03235408.2018.1460914>

Ghosh, S. K. *et al.* 2013. Role of IAA metabolizing enzymes on production of IAA in root, nodule of *Cajanus cajan* and its PGP *Rhizobium* sp, *Biocatalysis and Agricultural Biotechnology*, 2(3), pp. 234–239. doi: 10.1016/j.bcab.2013.04.002

Ghosh, S. K., Pal, S., and Chakraborty, N. 2015. The qualitative and quantitative assay of siderophore production by some microorganisms and effect of different media on its production. *Int. J. Chem. Sci*,13(4):1621-1629.

Ghosh, S.K., Banerjee, S., and Sengupta, C. 2017. Siderophore production by antagonistic fungi : Bioassay, characterization and estimation of siderophores from important antagonistic fungi. *JBiopest*, 10(2): 105-112

Glick, B.R., 2012 Plant growth-promoting bacteria: mechanisms and applications. *Scientifica* 2012:1–15. <https://doi.org/10.6064/2012/963401>

Glickmann, E. and Dessaux, Y. 1995. A critical examination of the specificity of the salkowski reagent for indolic compounds produced by phytopathogenic bacteria . These include : A Critical Examination of the Specificity of the Salkowski Reagent for Indolic Compounds Produced by Phytopatho', *Applied and Environmental Microbiology*, 61(2), pp. 793–796.

R., and Chakrabarty, S.K. 2013. Gibberellic acid in plant. *Plant Signaling and Behavior*,8:9, e25504, <http://dx.doi.org/10.4161/psb.25504>



Gudesblat, G.E., Torres, P.S., Vojnov, A.A. 2009. Plant Signaling and Behavior 4:12, 1114-1116.

Goodwin, S.B, Sujkowski, L.S. and Fry W. E. 1996. Widespread distribution and probable origin of resistance to metalaxyl in clonal genotypes of *Phytophthora infestans* in the United States and western Canada. *Phytopathology*. 86:793–800.  
<https://doi.org/10.1094/PHYTO.1997.87.4.462>

Hopkin, W.G. 1995. *Introduction to Plant Physiology*. Jhon Wiley & Sons, Inc. Singapore

Hanafiah, K.A dan I. Anas, A. Napoleon, N. Ghoffar. 2005. *Biologi tanah (ekologi dan makrobiologi tanah)*. Grafindo Persada. Jakarta.

Haq I and Dahot MU. 2007. Micro-propagation efficiency in banana (*Musa* spp.) under different immersion systems. *Pak J Biol Sci* 10:726-733.

Hyakumachi, M and Kubota, M. 2003. Fungi as plant growth promoter and disease suppressor. Pp. 101- 110 In: *Fungal Biotechnology in Agricultural, Food and Environmental Application*. Arora D. K. (ed) Marcel Dekker.

Hossain M, Sultana F, Kubota M, Koyama H, Hyakumachi M. 2007. The plant growth-promoting fungus *Penicillium simplicissimum* GP17-2 induces resistance in *Arabidopsis thaliana* by activation of multiple defense signals. *Plant Cell Physiol*. 48: 1724-1736

Holzberg M and Artis W. 1983. Hydroxamate siderophore production by opportunistic and systemic fungal pathogens. *Infect. Immun*. 40:1134–1139.

Haselwandter K. 2008. Structure and function of siderophores produced by mycorrhizal fungi. *Mineral. Mag.*72: 61-64.

Hall, G. 1987. SEM Studies on sterile fungi on roots of sterile wheat seedlings. *Trans. Br. Mycol. Soc.* 88: 549-553.

n, M., Khan, S.A., Khan, A.L., Rehman, G., Sohn, E.Y., Shah, A.S., Kim, J.G., and Lee, I. 2009. *Phoma herbarum* as a New Gibberellin-



Producing and Plant Growth-promoting Fungus. J. Microbiol. Biotechnol. DOI : 10.4014/jmb.0901.0030

Hamayun, M., Khan, S.A., Khan, A.L., Tang, D.S., Hussain, J., Ahmad, B., Anwar, Y and Lee, I.J. 2010. Growth promotion of Cucumber by pure cultures of gibberellin-producing *Phoma* sp. GAH7. World J. Microbiol Biotechnol 26: 889-894.

Haryanti, S. 2010. Jumlah dan Distribusi Stomata pada Daun Beberapa Spesies Tanaman Dikotil dan Monokotil. Jurnal Buletin Anatomi dan Fisiologi . Vol. XVIII, No. 2.

Harman, G.E. 2006. Overview of mechanism and uses of *Trichoderma* spp. Phytopathology 96:190-194.

Harma, G.E., Howell, C.R., Viterbo, A., Chet, I., Lorito, M. 2004. Reviews : *Trichoderma* species-opportunistic, avirulent plant symbionts. Nat Rev Microbiol 2 : 43-56.

Herdyastuti, N., Raharjo, T.J., Mudasir dan Matsjeh, S., 2009, Chitinase and Chitinolytic Microorganism : Isolation, Characterization and potential, *Indonesian Journal of Chemistry*, 9 (1): 37-47

Hossain, M., Sultana, F., Islam, S. 2017. Plant Growth Promoting Fungi (PGPF) : Phytostimulation and Induced Systemic Resistance. Springer Link. Plant Microbe Interactions in Agro-Ecological Perspective pp. 135-191

Hussein, K.A. and Joo, J.H. 2019. Zinc ions affect siderophore production by fungi isolated from the panax ginseng rhizosphere. J. Microbiol. Biotechnol, 29(1): 105-113.

Hyakumachi, M., Takatsugi, H., Ishihara, H and Kageyama, K. 1993. Potentiality of plant growth promoting fungi in disease suppression. Sixth International Congress of Plant Pathology, Montreal, Que., July-August, 1993, p.270.

Hyakumachi, M. 1994. Plant Growth Promoting Fungi from Turfgrass Rhizosphere with Potential for Disease Suppression. Soil Microorganisms No 44, pp. 53-68.



- Hunter D.G., Iosefa, T., Delp, C. J. and Fonoti, P. 2001. Beyond taro leaf blight: a participatory approach for plant breeding and selection for taro improvement in Samoa.
- Indonesian Trade Promotion Centre. 2014. *Satoimo (Taro) 0714.40.100*. Osaka (JP): ITPC
- Irwin, S.V., Kaufusi, P., Banks, K., de la Peña, R. and Cho, J.J. (1998) Molecular characterization of taro (*Colocasia esculenta*) using RAPD markers. *Euphytica* 99(3),183–189.
- International Journal of Agriculture and Biology. 2001. 1560 -8530/3-2-157-162.
- Ismail., Hamayun, M., Hussain, A., Iqbal, Amjad., Khan, S.A., and Lee, I.J., 2018. *Biomed Research International*. Volume 2018. <http://doi.org/10.1155/2018/7696831>
- Islam, S., Akanda, A.M., Sultana, F., and Hossain, Md.M. 2013. *Archieves of Phytopathology and Plant Protection*. Vol 47, Issue 10. <https://doi.org/10.1080/03235408.2013.837633>
- Jackson, G.V.H. 1977. *Taro leaf blight*. In Advisory Leaflet No. 3; South Pacific Commission: Noumea, New Caledonia,; pp. 4.
- Jacobs, K. and Botha, A. (2008). *Mucor renisporus* sp. nov., a new coprophilous species from Southern Africa. *Fungal Diversity* 29: 27-35.
- Jouanneau, J.P, Lapous, D. and Guern, J., 1991. In plant protoplasts, the spontaneous expression of defense reactions and the responsiveness to exogenous elicitors are under auxin control. *Plant Physiol*. 96:459–466.
- Jadhav, H.P. and Sayyed,R.Z. 2016. Hydrolytic enzymes of rhizospheric microbes in crop protection. *MOJ Cell Sci Rep* 3 : 00070
- Jadhav H.P., Shaikh, S.S., and Sayyed,R.Z. 2017. Role of hydrolytic enzymes of rhizoflora in biocontrol of fungal phytopathogens : an overview. *Springer*, pp183-203.



June, T. 1999. Kapita selekta agroklimatologi. Ekofisiologi tanaman. Jurusan Geofisika dan Meteorologi. FMIPA. IPB.Bogor. 349-368.

Jackson, G.V.H.; Gollifer, D.E. 1975. Storage rots of taro, *Colocasia esculenta*, in the British Solomon Islands. *Ann. Appl. Biol*, 80, 217–230.

Kasno, A. 2014. Prospek Bioindustri Talas. Pusat Penelitian dan Pengembangan Tanaman Pangan (online) <http://pangan.litbang.pertanian.go.id/berita-446-prospek-bioindustri-talas-.html>

Kubicek, C. P., Bissett, J., Druzhinin, I., Kullnig-Gradinger, C., Szakacs, G. 2003. Genetic and metabolic diversity of *Trichoderma* a case study on South-East Asian isolates. *Fungal Genetic Biology* 38, 310-319.

Kanti A. 2005. Actinomycetes selulolitik dari tanah Hutan Taman Nasional Bukit Dua Belas, Jambi. *J Biodiversitas*. 2(6):85-89.

Kasana, R.C., Salwan, R., Dhar, H., Dutt, S., and Gulati, A. 2008. A Rapid and Easy Method for the Detection of microbial celluloses on agar plates using gram's iodine. *Curr. Microbiol* 57:503-507

Kawaguchi, M., and Sy no, K. 1996. The excessive production of indole-3-acetic acid and its significance in studies of the biosynthesis of this regulator of plant growth and development. *Plant Cell Physiol* 37(8): 1043–1048. <https://doi.org/10.1093/oxfordjournals.pcp.a029051>

Kawaide, H. 2006. Biochemical and molecular analyses of gibberellin biosynthesis in fungi. *Biosci Biotechnol Biochem* 70(3):583–590. <https://doi.org/10.1271/bbb.70.583>

Kesaulya, H., Baharuddin., Zakaria, B., and Syaiful, S. A. 2015. Isolation and physiological characterization of PGPR from potato plant rhizosphere in medium land of buru island. *Procedia Food Scienc*, 3: 190-199.

Khokhar, I., Haider, M.S., Mushtaq, S. and Mukhtar, I., 2012. Isolation and screening of Highly Cellulolytic Filamentous Fungi. *Scholarly Journal of Agricultural Science* Vol. 2(7), pp. 126-129, July 2012

D.F., Malamy, J. 1994. The salicylic acid signal in plants. *Plant Molecular Biology* 26: 1439-1458.



Klich, M.A. 2002. Identification of Common Aspergillus species. Netherlands: Centraalbureau voor Schimmelauteurs

Kraemer, S.M. 2004. Iron oxide dissolution and solubility in the presence of siderophores. *Aquatic Science*,66: 3-18.

Kumar, N. V., Rajam, K. S. and Rani, M. E. 2017. Plant Growth Promotion Efficacy of Indole Acetic Acid ( IAA ) Produced by a Mangrove Associated Fungi- *Trichoderma viride* VKF3, 6(11), pp. 2692–2701. doi: 10.20546/ijcmas.2017.611.317.

Kovacs, K., 2009. Applications of mössbauer spectroscopy in plant physiology, *phD theses* (Budapest : Elte Institute of Chemistry) pp 1-7

Khoiroh, Y., 2014. Pertumbuhan serta hubungan kerapatan stomata dan berat umbi pada *Amorphophallus muelleri* Blume dan *Amorphophallus variabilis* Blume. *Jurnal Biotropika*. Vol. 2 No 5 : 249-253

Kuruvilla, K.M. and Singh, A. 1981. Karyotypic and electrophoretic studies on taro and its origin. *Euphytica* 30, 405–413.

Lebot, V., 2009. Tropical Root and Tuber Crops (Cassava, Seet otato, Yams and Aroids). *Crop Production Science in Horticulture*

Lingga, P. 1986. *Petunjuk penggunaan Kapur*. PT. Penebar Swadaya. Anggota IKAPI. Jakarta. 48 halaman

Lapeyrie F, Ranger J, Vairalles D. 1991. Phosphate solubilizing activity of ectomycorrhizal fungi in vitro. *Canadian J. Bot.* 69: 342-346.

Lakshmi, B.K.M., Reddy, R.V.S.K and Dilip Babu, J. 2012. Impact of weather parameters on the incidence of leaf blight disease in Taro (*Colocasia esculenta* (L.) Schott.) *Journal of Root Crops*. 38 (1): 93-96.

Lindquist JA. 2001. Bacteriological and Ecological Observation on the Northern Pitcher Plant, *Sarracenia purpurea*. Literature review, part III ; Plant Microbial Relationships. Dept of Bacteriol Univ. Of Wisconsin, Madison, WI.

M., Hills, F.J. 1978. *Agricultural experimentation: design and analysis*. Somerset, NJ:John Wiley & Sons Inc.



- Lebot, V., Herail, C., Gunua, T., Pardales, J., Prana, M., Thongjiem, M. and Viet, N, 2003. Isozyme and RAPD variation among *Phytophthora colocasiae* isolates from South-east Asia and The Pacific. *Plant Pathol*, 52 (3): 303-313. DOI: 10.1046/j.1365-3059.2003.00851.x
- Latifian, M., Rahnama, A.A and Sharifnezhad, H. 2012. Effects of planting on major date palm pests and diseases injuri severity. *International Journal of Agriculture and Crop Science (IJACS)* Vol. 4 (19).
- Maria, E.D. and Villa, A. F., 2002. Evaluation of the siderophores production by *Pseudomonas aeruginosa* PSS, *Microbiologia*. 44: 3-4.
- Mahmoud, A.L. and Alla, A., Siderophore production by some microorganisms and their effect on *Bradyrhizobium*- mung bean symbiosis,
- Machuca, A and Milagres, A.M.F., 2003. Use of CAS-agar plate modified to study the effect of different variables on the siderophore production by *Aspergillus*, *Letters in Applied Microbiology*, 36: 177–181
- Meera, MS., Shivana, M.B., Kageyama, K and Hyakumachi, M., 1994. Plant Growth promoting fungi from Zoysiagrass rhizosphere as potential inducers of systemic resistance in cucumber. *Phytopathology* 84; 1399 – 1406
- Misra, R.S., Maheshwari, S.K., Sriram, S., Sharma, K and Sahu, A.K. 2007. Integrated management of *Phytophthora* leaf blight disease of Taro. *Journal of Root Crops*. 33
- Misra,R.S., Mishra,A.K., Sarma,K., Jeeva,M.L., Hedge,V.2011. Characterisation of *Phytophthora colocasiae* isolates associated with Leaf Blight of Taro in India. *Archives of Phytopathology And Plant Protection*, 44:6, 581-591, DOI: 10.1080/03235400903266339
- Minantyorini dan Somantri, I.H., 2002. *Panduan Karakterisasi dan Evaluasi Plasma nutfah Talas*. Komisi Nasional Plasma Nutfah. 83 hlm

M., K.N. Amruthesh, J. Sudisha., S.R. Niranjana and H.S. Shetty. 2012. Screening for plant growth promoting fungi and their ability for growth promotion and induction of resistance in pearl millet against downy mildew disease. *Journal of Phytology*. 4(5): 30-36.



- Mulyatni, A. S., Priyatmojo, A., Purwantara, A. 2011. Sekuen *Internal Transcribed Spacer* (ITS) DNA ribosomal *Oncobasidium theobromae* dan jamur sekerabat pembeding. *Menara Perkebunan*. 79 (1): 1-5.
- Magan, N., and Lacey, J. 1984. Effect of Water Activity, Temperature and Substrate on Interactions Between Field and Storage Fungi. *Trans. Br. Mycol.Soc*, 82(1),83-93
- Maor, R. *et al.* 2004. In Planta Production of Indole-3-Acetic Acid by *Colletotrichum gloeosporioides* f . sp . In *Planta Production of Indole-3-Acetic Acid by Colletotrichum gloeosporioides* f . sp . *aeschynomene*’, *Society*, 70(3), pp. 3–6. doi: 10.1128/AEM.70.3.1852.
- Mbong, G.A, Fokunang, C.N, Manju, E.B., Njukeng, A.P., Tembe, E.A., Fokunang and Rachid, H. 2015. Mycelia Growth and Sporulation of *Phytophthora colocasiae* isolates under Selected Conditions. *American Journal of Exprimental Agriculture*, 8(4): 193-201. Article no AJEA.2015.163. ISSN: 2231-0606.
- Meryandini, A., Widosari, W., Maranatha, B., Sumarti, T.C., Rachmania, N. and Satria H. 2009. Isolasi bakteri selulolitik dan karakterisasi enzimnya. *J Makara Sains*.1(13):33-38.
- Miecheli. 1809. *Aspergillus species*. Micheli ex Link in 1809 (online) <https://drfungus.org/knowledge-base/aspergillus-species/>
- Miethke, M., and Marahiel, M.A. 2007. Siderophore-based iron acquisition and pathogen control. *Microbiology and Molecular Biology Reviews*, 71(3): 413-451.
- Mishra, A.K., Sharma, K., Misra, R.S. 2010. Isozyme and PCR-based genotyping of epidemic *Phytophthora colocasiae* associated with taro leaf blight. *Arch Phytopathol Plant Prot*. 43 (14) : 1367-1380
- Misra., R.S, Ajay, K.M., Kamal, S., and Jeeva, M.L. 2011. Characterisation of *Phytophthora colocasiae* isolates associated with Leaf B Vlight of Taro India. Article in *Archives of Phytopathology and Plant Protection* Vol 4, No 6, 581-591. Doi : <http://dx.doi.org/10.1080/0325499903266339>



Mustika, R., Martina, A., Leni, B., Zul, D., Ramadhan, N. 2013. Isolasi dan seleksi jamur selulolitik dari tanah gambut di perkebunan karet Desa Rimbo Panjang kabupaten kampar Riau. Lampung, Indonesia.

Mulyani, S. 2006. *Anatomi Tumbuhan*. Kanisius. Yogyakarta.

Mangal, M., Bansal, S and Sharma, M. 2014. Macro and Micromorphological Characterization of Different *Aspergillus* Isolates. *Legume Res*, 37 (4) : 372-378.

Melotto, M., Underwood, W., Koczan, J., Nomura, Kinya, and Yang He, Sheng. 2006. Plant Stomata Function in Innate Immunity against Bacterial Invasion. *Cel* 126, 969-980. Doi : 10.1016/j.cell.2006.06.054

Melotto, M., Yang He, S., and Underwood, W. 2008. Role of Stomata in Plant innate immunity and foliar bacterial diseases. *Annu. Rev. Phytopathol.* 2008. 46:101–22. Doi : 10.1146/annurev.phyto.121107.104959

Melotto, M., Zhang, L, Oblessuc, P.R and Yang He, S. 2017. Stomatal Defense a Decade Later. *Plant Physiology*, Vol. 174, pp. 561–571

Nath, V.S., Basheer,S., Jeeva,M.L., Hedge,V.M., Devi,A., Misra,R.S, Veena,S.S and Raj,M. 2016. A Rapid and Efficient Method for In Vitro Screening of Taro for Leaf Blight Disease Caused by *Phytophthora colocasiae*. *J.Phytopathol*.doi : 10.1111/jph.12477

Nath,V.S., Hedge,V.M., Jeeva,M.L., Misra,R.S., Veena,S.S., Raj,M. and Sankas,D.S. 2014. Morphological, pathological and molecular characterization of *Phytophthora colocasiae* responsible for taro leaf blight disease in India. *Phytoparasitica*. 2015. 43:21–35. DOI 10.1007/s12600-014-0422-5

Nasahi, C., 2010. *Peran Mikroba Dalam Pertanian Organik*. Bandung: UNPAD.

Neilands, J.B. 1995. Siderophores: structure and function of microbial iron transport compounds. *Journal of Biological Chemistry* 270: 26723–26726,

s,J.B, 1993. Perspectives in biochemistry and biophysics, siderophores, *Archives of Biochemistry and Biophysics* 302: 1–3.



- Nenwany, V., Doshi, P., Saha, T and Rajkumar, S., 2010. Isolation and Characterization of a fungal isolate for phosphate solubilization and plant growth promoting activity. *Journal of Yest and Fungal Research* Vol1 (1) pp 009-014
- Nahas, E. 1996. Factors determining rock phosphate solubilization by microorganisms isolated from soil. *World J. Microbiol. Biotechnol.* 12:567–572
- Nurhayati. 2011. Penggunaan Jamur dan Bakteri dalam Pengendalian Penyakit Tanaman secara Hayati yang Ramah Lingkungan. *Prosiding Semirata. Bidang ilmu-ilmu Pertanian. BKS-PTN Wilayah Barat.*
- Niere B. 2002. *Banana Endophyte: Potential for Pest Biocontrol.* IITAESARC. Kampala, Uganda.
- Nagano, M., Sunaryo dan Suminarti. 2016. Studi tentang aplikasi kompos ub pada pertumbuhan dan hasil tanaman talas (*colocasia esculenta* (L.) Schott var. *Antiquorum*) yang ditanam di lahan kering pada musim kemarau. *Jurnal produksi tanaman*, Vol. 4 No. 7 : 570-577
- Nath, V.S., Muthukrishnan, S., Vinayaka, M.H., Muthulekshmi, L.J., Raj, S.M., Syamala, S.V, Mithun, R. 2013. Genetic diversity of *Phytophthora colocasiae* isolates in India based on AFLP analysis. *3 Biotech* (2013) 3:297–305. DOI 10.1007/s13205-012-0101-5
- Nath, V.S., Muthukrishnan, S., Vinayaka, M.H., Muthulekshmi, L.J., Raj, S.M., Syamala, S.V, Mithun, R . 2014. Morphological, Pathological and Molecular Characterization of *Phytophthora colocasiae* responsible for taro leaf blight disease in India. *Phytoparasitica* Vol 43 p.21-35. <http://dx.doi.org/10.1007/s12600-014-0422-5>
- Nath, V.S., John, N.S., Ajanadevi, I.P. 2014. Characterization of *Trichoderma* spp. Antagonistic to *Phytophthora colocasiae* associated with leaf blight of taro. *Annals of Microbiology* 64(4). DOI: 10.1007/s13213-013-0794-7
- Nath, V.S., Basheer, S., Jeeva, M.L, Hegde, V.M., Devi, A., Misra, R.S., Veena, S., Raj, M. 2011. A Rapid and Efficient Method for In Vitro Screening of Taro for Leaf Blight Disease Caused by *Phytophthora colocasiae*. *Journal of Phytopathology*. doi: 10.1111/jph.12477



- Nayak, S.R., Panigrahi, M.R., Gupta, N. 2017. Beneficial Impact of Phosphate Solubilizing Fungi on growth of *Saraca asoca* (Roxb.) de Wild. Under nursery condition. *Tropical Plant Research* 4 (2): 242-245. Doi: 10.22271/tpr.2017.v4.i2.033
- Nenwani, V., Doshi, P., Saha, T, and Rajkumar,S. 2010. Isolation and characterization of a fungal isolate for phosphate solubilization and plant growth promoting activity. *Journal of Yeast and Fungal Research* Vol 1 (1) pp 009-014.
- Nelson, S., Brooks, F. and Teves, G. *Taro Leaf Blight in Hawaii*; Plant Disease Bulletin No. PD-71; University of Hawaii: Manoa, HI, USA, 2011.
- Omar, S.A., 1998. The role of rock-phosphate-solubilizing fungi and vesicular-arbusular-mycorrhiza (VAM) in growth of wheat plants fertilized with rock phosphate. *World J. Microbiol. Biotech.* 14 : 211–218.
- Omane, K.A. Oduro, E.W and Cornelius. 2012. First Report of Leaf Blight of Taro (*Colocasia esculenta*) caused by *Phytophthora colocasiae* in Ghana. *Plant Disease*, Volume 96, Number 2. <http://dx.doi.org/10.1094/PDIS-09-11-0789>
- Oku, H. 1994. *Plant Pathogenesis and Disease Control*. London. Lewis Publ.
- Purseglove, J.W.1972. *Tropical Crops : Monocotyledons*. Longman Group Ltd. London, 2nd edition
- Purnamasari, M. I., Prihatna, C., Gunawan, A. W. and Suwanto, A. 2012. Isolasi dan identifikasi secara molekuler *Ganoderma* spp. yang berasosiasi dengan penyakit busuk pangkal batang di kelapa sawit. *Jurnal Fitopatologi Indonesia*. 8 (1): 9-15.
- Prana, T.K., Prana, M.S and Kuswara, T. 2003. Taro Production, Constraints and Future Research and Development Programme in Indonesia. Third Taro Symposium. Nandi,Fiji Island in *Proceeding of International Scientific Meeting Jointly Organised by the Secretariat of the Pacific Community and The International Plant Genetic Resource Institute*
- M.S., Hartati,S. and Prana, T.K., 2000. *A study on Isozyme Variation the Indonesian Taro (Colocasia spp.) Germplasms Collection*. M. Sakani dan K. Komaki (Eds.) *Potential of Rootcrops for Food and*



Industrial Resources, Proc. of the Twelfth Symposium of the ISTRC.Tsukuba, Japan, 10-16 September 2000.

Prana, M.S. 2007. Study on Flowering Biology of Taro (*Colocasia esculenta* (L.) Schott.)..Jurnal B I O D I V E R S I T A S ISSN: 1412-033X. Volume 8, Nomor 1 Januari 2007. Halaman: 63-66

Prana, M.S., Prana, T.K., Hartati, N.S and Kuswara, T. 1999. *Prospek Pengembangan Talas (Colocasia esculenta (L.) Schott.) di Jawa Barat*. Makalah disajikan pada Seminar BAPEDDA Jawa Barat, Bandung, 5 Juli 2000.

Prayogo, Y., Tengkan, W., Marwoto. 2005. Prospek Cendawan Entomopatogen *M. anisopliae* untuk mengendalikan Ulat Grayak *Spodoptera litura* pada kedelai. Jurnal Litbang Pertanian. 24 (1): 19-26.

Puspitasari, D., Wibowo, A., Rahayu, S, Prihatini, I. and Rimbawanto,A., 2016. Karakter morfologi isolat *Phlebiopsis sp.1* jamur pengendali hayati yang potensial untuk *Ganoderma philippii*. Jurnal Pemuliaan Tanaman Hutan Vol.10 No.1, Juni 2016, p. 51 – 61

Padmaja, G., Devi, G.U., Kanaka, M. and Sridevi, D. 2017. Characterization of Isolates of Phytophthora colocasiae Collected from Andhra Pradesh and Telangana Causing Leaf Blight of Taro. Int. J.Curr. Microbiol.App.Sci.6(10):1901-1912.  
doi: <https://doi.org/10.20546/ijcmas.2017.610.229>

Pandya, N.D., and Desai, P.V. 2014. Screening and characterization of GA3 producing Pseudomonas monteilii and its impact on plant growth promotion. International Journal of Current Microbiology and Applied Sciences 3(5):110-115.

Pandya, N., Jadhav, H., Desai, P.V. and Sayyed, R.Z. 2018. Plant Growth Promoting Potential of Aspergillus sp. NPF7, isolated from wheat rhizosphere in South Gujarat India. Environmental sustainability. <https://doi.org/10.1007/s42398-018-0025-z>

TM. and Golding, G.B. 2012. Correction factors that affect large subunit ribosomal DNA Amplicon sequencing studies of fungal communities : Classification method, primer choice, and error. Plos



One 7(8):10. <http://doi.org/10.1371/annotation/188edbe7-9f2e-4031-9155-d4a9337e6257>

Prema, P., and Selvarani, M. 2013. Microbial siderophore as a potent biocontrol agent for plant pathogens. *International Journal of Scientific Research*,2(7): 2277-8179.

Prashar P, Kapoor, N., and Sachdeva, S. 2014. Rhizosphere : its structure, bacterial diversity and significance. *Rev Environ Sci Biotechnol* 13:63-77

Purnamasari, D., 2013. Isolasi dan Seleksi Bakteri Selulolitik Penghambat Pertumbuhan Cendawan Pada Tanaman Kelapa Sawit. Skripsi. Institut Pertanian Bogor

Purwantisari, S dan Hastuti, R.B. 2009. Uji Antagonisme Jamur Patogen *Phytophthora infestans* penyebab penyakit busuk daun dan umbi tanaman kentang dengan menggunakan *Trichoderma* spp Isolat local. *Bioma*. Vol 11, No. 1. Hal 24-32. ISSN: 1410-8801

Pan, S. and Ghosh, S. K. 1997. Antagonistic potential of some soil fungi on *Phytophthora colocasiae* Racib. *Journal of Mycopathological Research*. 35: 153-157.

Putter, C.A.J. 1976. Phenology and Epidemiology of *Phytophthora colocasiae* Racib. on Taro in the East West Province, Papua New Guinea. Ph.D. Thesis, University of PNG, Papua New Guinea.

Papakonstantinou E, Michael R, George K. 2012. Hyaluronic acid: A key molecule in skin aging. *Dermatoendocrinol*. 4(3):253–258.

Quitugua, R.J.; Trujillo, E.E. Survival of *Phytophthora colocasiae* in field soil at various temperatures and water matric potentials. *Plant Dis*. 1998, 82, 203–207.

Rakib, M.R.M., Bong, C.F.J., Khairulmazmi, A., and Idris, A.S. 2014. Genetic and morphological diversity of *Ganoderma* species isolated from infected oil palms (*Elaeis guineensis*). *International Journal of Agriculture and Biology*, 16, 691-699.

dan Herdi Yudirachman, 2015. *Budidaya Talas*. Yogyakarta: Kanisius.



- Rahman, MH., Haque, MS., Karim, MA., dan Masum, A. 2006. Effects of Gibberellic Acid (GA3) on Breaking Dormancy in Garlic (*Allium sativum* L.). *Int'l J. of Agric.& Biology*. 1560–8530/2006/08-1-63-65.
- Rahayu, F., Saryono. T dan Nugroho. 2015. Isolasi DNA dan amplifikasi PCR daerah ITS rDNA Fungi Endofit Umbi Tanaman Dahlia (*Dahlia variabilis*) IBK URCC69. *Jom FMIPA Volume 2 No.1 Februari 2015*
- Rudy, M, Sefi, H, Hagit, L. K, and Amir Sharon, 2003. In Planta Production of Indole-3-Acetic Acid by *Colletotrichum gloeosporioides* f. sp. *Aeschynomene*, Vol. 70, No. 3
- Robinette, D. and Matthyse, A.G. 1990. Inhibition by *Agrobacterium tumefaciens* and *Pseudomonas savastanoi* of development of the hypersensitive response elicited by *Pseudomonas syringae* pv. *phaseolicola*. *J Bacteriol*. 172:5742–5749.
- Rahman, A. *et al.* 2010. Salkowski's Reagent Test as a Primary Screening Index for Functionalities of Rhizobacteria Isolated from Wild Dipterocarp Saplings Growing Naturally on Medium-Strongly Acidic Tropical Peat Soil. *Bioscience, Biotechnology, and Biochemistry*, 74(11), pp. 2202–2208. doi: 10.1271/bbb.100360.
- Raja, H.A., Miller, A.N., Pearce, C.J., and Oberlies, N.H. 2017. Fungal identification using molecular tools : A Primer for the natural products research community. *Journal of Natural Products*, 2017 Mar 24; 80(3): 756–770. doi: 10.1021/acs.jnatprod.6b01085
- Rao, A., and Tarafdar, J.C., 1993. Role of VAM Fungi in nutrient uptake and growth of cluster bean in an arid soil. *Arid Soil Res. Rehabilitation*, 7, 275-280.
- Rebecca LJ, Susithra, Sharmila S, Das, M.P. 2013. Isolation and Screening of Chitinase Producing *Serratia marcescens* from Soil. *J. Chem. Pharm. Res.* 5:2, 192-195.
- Rodrigues BC et al.2009. Comparative growth of trichoderma strains in different nutritional sources, using bioscreen c automated system. *Braz. Microbiol* 40:404-410.



- Samuels, G.J. *Trichoderma* (Online) Systematic Mycology and Microbiology Laboratory, ARS, USDADiakses pada 10 Apr 2010
- Stalpers, J.A. 1978. *Identification of wood-inhabiting Aphyllophorales in pure culture*. Studies in Mycology, 16, 1-248. Baarn, Netherlands, Centraalbureau voor Schimmelcultures. Retrieved from [http://www.cbs.knaw.nl/publications/1016/full\\_text.htm](http://www.cbs.knaw.nl/publications/1016/full_text.htm)
- Sambrook, J., Russel, D.W. 2001. *Molecular Cloning: A Laboratory Manual*. Ed.3. Cold Spring Harbor: Cold Spring Harbor Laboratory Press
- Supriyanto, A. Priyatmojo dan Arwiyanto, T. 2011. Uji penggabungan pgpf dan *Pseudomonas putida* strain PF-20 dalam pengendalian hayati penyakit busuk lunak lidah buaya di tanah gambut. *Jurnal HPT Topika*. 1:11-21
- Shokri, D. and Emtiazi, G. Indole-3-acetic acid (IAA) Production in Symbiotic and Non-Symbiotic Nitrogen-Fixing Bacteria and its Optimization by Taguchi Design. *Curr Microbiol*. Vol. 61 (2010) 217-225.
- Shinshi, H, Mohnen, D and Meins, F. 1987. Regulation of a plant pathogenesis-related enzyme: inhibition of chitinase and chitinase mRNA accumulation in cultured tobacco tissues by auxin and cytokinin. *Proc Natl Acad Sci*. 84: 89–93.
- Syamsuri, I., 2007. *Biologi Untuk SMA Kelas XII semester 1*. Jakarta: Erlangga.
- Sethi, R.P, Rao, S. N.S. 1968. Solubilization of tricalcium phosphates and calcium phosphate by soil fungi. *J. Gen. Appl. Microbiol*. 14:329–331.
- Salisbury *et al.* 1995. *Fisiologi Tumbuhan*. Bandung: ITB Press.
- Sanjaya, Y., Nurhaeni, H., Halima, M., 2010. Isolasi, identifikasi, dan karakterisasi jamur entomopatogen dari Larva *Spodoptera litura* (fabricius). *Jurnal Bionatura-Jurnal Ilmu-ilmu Hayati dan Fisik*. ISSN 1411 - 0903. Vol. 12, No. 3, November 2010: 136 – 141
- Singh, D, Jackson, G, Hunter, D, *et al.*, 2012. Taro leaf blight - a threat to food security. *Journal Agriculture 2*, 182.



M and Devaki, N.S. 2012. Journal of Agricultural Technology, Vol 1):233-240

- Silva, D., Batista, L.R., Rezende, E.F., Fungaro, M.H., Sartori, D., and Alves, E. 2011. Identification of Fungi of the genus *Aspergillus* Section *Nigri* Using Polyphasic Taxonomy. *Brazilian Journal of Microbiology* 42 : 761-773
- Simanungkalit. 2001. Aplikasi pupuk hayati dan pupuk kimia, suatu pendekatan terpadu. *Buletin AgroBio* 4(2): 56-61
- Sivasakthivelan, P., and Stella, D. (2012). Studies on the phytohormone producing potential of agriculturally beneficial microbial (ABM) isolates from different rhizosphere soils of sunflower in Tamil Nadu. *International Journal of Pharmaceutical and Biological Archives*, 3(5): 1150-1156.
- Shivanna, M.B., Meera, M.S and Hyakumachi, M. 1994. Sterile fungi from zoysiagrass rhizosphere as plant growth promoters in spring whwat. *Canadian Journal of Microbiology*, 40(8), 637-644. doi: 10.1139/m94-101
- Shivanna, M.B., Meera, M.S., Kageyama, K., and Hyakumachi, M. 1996. Growth Promotion Ability of Zoysiagrass rhizosphere fungi in consecutive plantings of wheat and soybean.
- Shivanna, M.B., Meera, M.S., Kageyama, K., and Hyakumachi, M. 1996. Role of root colonization ability of plant growth promoting fungi in the suppression of take-all and common root rot of wheat. *Crop Protection* Vol 15. No 6. Pp 497-504.
- Sumardi, I., Nugroho, H., dan Purnomo. 2010. *Struktur dan Perkembangan Tumbuhan*. Jakarta Penebar Swadaya.
- Sumanarty, N., 2010. Pengaruh Pemupukan N dan K pada Pertumbuhan dan Hasil Tanaman Talas yang Ditanam di Lahan Kering. *Fakultas Pertanian Universitas Brawijaya. Akta Agrosia* Vol. 13 No.1 hlm 1 - 7
- Sun, B.T., Akutse, K.S., Xia, X.F., Chen, J.H., Ai, X., Tang, Y., Wang, Q., Feng, B.W., Goettel, M.S., and You, M.S. 2018. Endophytic effects of *Aspergillus oryzae* on radish (*Raphanus sativus*) and its herbivore, *Utella xylostella*. *Planta* 248 (3) : 705-714. Doi :10.1007/s00425-018-0928-4



- Sundar., 2017. Survei Penyakit Hawar Daun dan Bercak Oraye pada Tanaman Talas (*Colocasia esculenta* di Malang. <http://repository.ub.ac.id/4107>
- Surtinah., 2013. Pengujian Kandungan Unsur Hara dalam Kompos yang Berasal dari Serasah Tanaman Jagung Manis (*Zea mays saccharata*). *J. Ilmiah Pertanian*. 11 (1): 16-25
- Susi. 2002. Isolasi Kitinase dari *Scleroderma columnae* dan *Trichoderma harzianum*. *Jurnal Ilmu Dasar* 3(1) : 30 – 35.
- Singh, D., Jackson, G., Hunter, D., Fullerton, R., Iosefa, T dan Okpul, T. 2012. Taro Leaf Blight-A Threat to food security. *Agriculture* Vol 2, 182-203; doi:10.3390/agriculture2030182
- Trizelia., Armon,N. and Jaelani,H. 2015. Keanekaragaman cendawan entomopatogen pada rizosfer berbagai tanaman sayuran. Pros sem nas masy biodiv indon. Volume 1, Nomor 5, Agustus 2015 ISSN: 2407-8050 Halaman: 998-1004 DOI: 10.13057/psnmbi/m010307
- Thorn, R.G, Reddy, C.A., Harris, D and Paul, E.A. 1996. Isolation of saprophytic Basidiomisetes from soil. *Applied and Enviromental Microbiology* 62: 4288-4292.
- Townsend, G.K. and Heuberger J.W., 1943. Methods for estimating losses caused by diseases in fungicide experiments. *Plant Dis. Reprtr.* 27, 340-343.
- Thankappan, M. 1985 Leaf blight of taro-a review. *J. Root Crop*. 11, 1–8.
- Tanimoto, T. and Matsumoto, T. 1986 Variations of morphological characters and isozyme patterns in Japanese cultivars of *Colocasia esculenta* Schott and *C. gigantea* Hook. *Japan Journal of Breeding* 36, 100–111.
- Usha, S., and Padmavathi, T. 2013. Effect of plant growth promoting microorganisms from rhizosphere of *Piper nigrum* L. *International Journal of Pharma and Bio Sciences*, 4(1): 835-846.

S and Padmavathi, T. 2016. Effect of plant growth promoting microorganisms from rhizosphere of Piper International Journal of Pharma and Biosciences 4 835–46  
 Tsopmbeng, G.R., 2012. Evaluation of culture media for growth and sporulation of *Phytophthora*



colocasiae Racib., causal agent of taro leaf blight. *Int. J. Biol. Chem. Sci.* Volume 6(4) : 1566-1573

Van Loon, L. C. 2000. *Mechanisms of resistance to plant diseases*. Netherland:Kluwr academic publisher. 521-574.

Vetukuri,R., Kushwaha, S., Sen,D., Whisson,S.C., Lamour, K.H., Briggs, L.J., 2018. Genome sequence resource for the oomycete taro pathogen *Phytophthora colocasiae*. *J. Mol Plant-Microbe Interaction*. [dx.doi.org. 10.1094/MPMI-12-17-0321A](https://doi.org/10.1094/MPMI-12-17-0321A)

Vibha, K.G. and Nidhi. 2014. Impact of phosphate solubilizing fungi on the soil nutrient status and yield mungbean (*Vigna radiate* L) crop. *Annual Agriculture Research New Series* 35(2): 136–143

Vinale, F., Sivasithamparam, K., Ghisalberti, E.L., Marra, R., Woo,S.L., and Lorito, M. 2008. Trichoderma plant pathogrn interactions. *Soil Biology and Biochemistry*, 40(1),1-10.

Weaver. J.W. 1972. *Plant growth substance in agriculture*. W.H Freeman and Co. San Fransisco. 418 halaman

Whitelaw MA. 2000. Growth promotion of plants inoculated with phosphate solubilizing fungi. Edited by Donald L. Sparks. *Advances in Agronomy*, Academic press 69 : 99-151

White, T. J., Bruns, T., Lee, S. and Taylor, J. 1990. Amplification and direct sequencing of fungal ribosomal RNA genes for phylogenetics. *PCR Protocols : A Guide to Methods and Applications*.

Watanabe T. 2002. *Pictorial Atlas of Soil and Seed Fungi: Morphologies of Cultured Fungi and Key to Species*. 2nd Edition. CRC Press, Boca Raton.

Waterhouse, G. M. 1963. Key to the spesies of *Phytophthora* De Bary. *Mycological Papers*, No 92

Wheeler, K. A and Hocking, A.D. 1993. *Journal of Applied Bacteriology* 74, 64-169.

T.J., Bruns, T.D., Lee, S.B and Taylor, J.W. Amplification and direct sequencing of fungal ribosomal RNA genes for phylogenetics.



- Wirth, S.J and Wolf, G.A. 1990. Dye-labelled substrates for the assay and detection of chitinase and lysozyme activity. *Journal of Microbiological Methods* 12: 197-205
- Yamada, T., Palm, C.J., Brooks, B. and Kosuge, T. 1985. Nucleotide sequences of the *Pseudomonas savastanoi* indole acetic acid genes show homology with *Agrobacterium tumefaciens* TDNA. *Proc Natl Acad Sci USA*. 82:6522–6526.
- Yadav, Verma, J.P., and Tiwari, K.N. 2011. Plant Growth Promoting Activities of Fungi and their effect on chickpea Plant Growth. *Asian Journal of Biological Sciences* 4 (3): 291-299. Doi : 10.3923/ajbs.2011.291.299
- Zulkifli, N.A and Zakaria, L. 2017. Morphological and Molecular Diversity of *Aspergillus* From Corn Grain Used as Livestock Feed. *Hayati Journal of Biosciences*.
- Zaki, B. M. 2006. Studi Pengaruh Frekuensi Penyiangan gulma terhadap pertumbuhan dan produksi Suweg (*Amorphophallus paeoniifolius* Denst. Nicolson) di bawah tegakan tanaman *Eucalyptus deglupta*. Skripsi. Program studi Agronomi. Fakultas Pertanian. IPB. Bogor.



## LAMPIRAN

Tabel Lampiran 1a. Rata –rata jumlah stomata pada perlakuan pemberian cendawan PGPF di Pembibitan

perlakuan	KELOMPOK					Jumlah	Rata-rata
	I	II	III	IV	V		
<b>Aot</b>	16.33	13.33	9.67	9.67	13.67	62.67	12.53
<b>A1</b>	16.33	11.00	12.33	13.00	14.67	67.33	13.47
<b>A2</b>	18.33	14.33	16.33	17.00	15.00	81.00	16.20
<b>A3</b>	18.67	18.33	16.33	10.00	18.00	81.33	16.27
<b>A4</b>	13.67	13.33	14.67	12.67	14.33	68.67	13.73
<b>A5</b>	16.33	16.00	17.00	16.67	19.00	85.00	17.00
<b>Jumlah</b>	99.67	86.33	86.33	79.00	94.67	<b>446.00</b>	

Tabel Lampiran 1b. Sidik Ragam rata-rata jumlah stomata pada perlakuan pemberian cendawan PGPF di Pembibitan

SK	DB	JK	KT	F.HITUNG	KET.	F.TABEL	
						0.05%	0.01%
<b>KELOMPOK</b>	4	43.32	10.83	0.64	<b>tn</b>	2.87	4.43
<b>PERLAKUAN</b>	5	84.89	16.98	4.40	<b>**</b>	2.71	4.10
<b>GALAT</b>	20	77.26	3.86				
<b>TOTAL</b>	29	205.47					

KK= **13.22%**

Keterangan = tn = Berpengaruh tidak nyata

\*\*= Berpengaruh sangat nyata



Tabel Lampiran 2a. Rata-rata Kerapatan stomata pada perlakuan pemberian cendawan PGPF di Pembibitan

perlakuan	KELOMPOK					Jumlah	Rata''
	I	II	III	IV	V		
<b>Aot</b>	76.95	62.81	45.54	45.54	64.39	295.23	59.05
<b>A1</b>	76.95	51.82	58.10	61.24	69.10	317.22	63.44
<b>A2</b>	86.37	67.53	76.95	80.09	70.67	381.60	76.32
<b>A3</b>	87.94	86.37	76.95	47.11	84.80	383.17	76.63
<b>A4</b>	64.39	62.81	69.10	59.67	67.53	323.50	64.70
<b>A5</b>	76.95	75.38	80.09	78.52	89.51	400.44	80.09
<b>Jumlah</b>	469.54	406.73	406.73	372.18	445.99	<b>2101.16</b>	

Tabel Lampiran 2b. Sidik Ragam rata-rata kerapatan stomata pada perlakuan pemberian cendawan PGPF di Pembibitan

SK	DB	JK	KT	F.HITUNG	KET.	F.TABEL	
						0.05	0.01
<b>KELOMPOK</b>	4	961.44	240.36	0.64	<b>tn</b>	2.87	4.43
<b>PERLAKUAN</b>	5	1884.07	376.81	4.40	<b>**</b>	2.71	4.10
<b>GALAT</b>	20	1714.74	85.74				
<b>TOTAL</b>	29	4560.25					

KK= 13.22%

Keterangan = tn = Berpengaruh tidak nyata

\*\*= Berpengaruh sangat nyata



Tabel Lampiran 3a. Rata-rata Luas Bukaannya Stomata pada perlakuan pemberian cendawan PGPF di Pembibitan

perlakuan	KELOMPOK					JUMLAH	Rata"
	I	II	III	IV	V		
<b>Aot</b>	0.0008	0.0006	0.0006	0.0003	0.0008	0.0031	0.0006
<b>A1</b>	0.0006	0.0010	0.0016	0.0009	0.0005	0.0047	0.0009
<b>A2</b>	0.0013	0.0010	0.0013	0.0019	0.0012	0.0067	0.0013
<b>A3</b>	0.0017	0.0006	0.0021	0.0005	0.0016	0.0065	0.0013
<b>A4</b>	0.0011	0.0016	0.0004	0.0008	0.0010	0.0049	0.0010
<b>A5</b>	0.0019	0.0033	0.0015	0.0021	0.0017	0.0105	0.0021
<b>JUMLAH</b>	0.0074	0.0082	0.0075	0.0065	0.0069	<b>0.0364</b>	

Tabel Lampiran 3b. Rata-rata luas bukaannya stomata pada perlakuan pemberian cendawan PGPF di Pembibitan (**Hasil data Transformasi (x+0.5)**)

perlakuan	KELOMPOK					JUMLAH	Rata"
	I	II	III	IV	V		
<b>Aot</b>	0.53	0.52	0.52	0.52	0.53	2.62	0.52
<b>A1</b>	0.52	0.53	0.54	0.53	0.52	2.65	0.53
<b>A2</b>	0.54	0.53	0.54	0.54	0.53	2.68	0.54
<b>A3</b>	0.54	0.52	0.55	0.52	0.54	2.67	0.53
<b>A4</b>	0.53	0.54	0.52	0.53	0.53	2.65	0.53
<b>A5</b>	0.54	0.56	0.54	0.55	0.54	2.73	0.55
<b>JUMLAH</b>	3.21	3.21	3.21	3.19	3.20	<b>16.01</b>	

Tabel Lampiran 3c. Sidik Ragam Rata-rata Luas Bukaannya Stomata pada perlakuan pemberian cendawan PGPF di Pembibitan (**Hasil data Transformasi (x+0.5)**)

SK	DB	JK	KT	F.HITUNG	KET.	F.TABEL	
						0.05	0.01
<b>KELOMPOK</b>	4	0.00005	0.00001	0.00005	<b>tn</b>	2.87	4.43
<b>PERLAKUAN</b>	5	1.222	0.244	4263.236	<b>**</b>	2.71	4.10
<b>GALAT</b>	20	0.001	0.000				
<b>TOTAL</b>	34	1.22					

1.42 %

an = tn = Berpengaruh tidak nyata

\*\*= Berpengaruh sangat nyata



Tabel Lampiran 4a. Rata-rata Luas Daun 28 HST pada perlakuan pemberian cendawan PGPF di Pembibitan

perlakuan	KELOMPOK					Jumlah	Rata-rata
	I	II	III	IV	V		
<b>Aot</b>	3.93	2.10	3.00	1.50	2.00	12.52	2.50
<b>A1</b>	72.63	77.09	90.49	75.18	77.94	393.33	78.67
<b>A2</b>	58.31	39.45	59.42	36.98	52.80	246.96	49.39
<b>A3</b>	30.23	30.68	24.58	25.59	31.00	142.07	28.41
<b>A4</b>	75.97	64.84	59.02	54.59	73.05	327.46	65.49
<b>A5</b>	35.57	27.46	33.00	22.10	150.31	268.43	53.69
<b>Jumlah</b>	276.63	241.61	269.51	215.92	387.10	<b>1390.76</b>	

Tabel Lampiran 4b. Rata-rata Luas Daun 28 HST pada perlakuan pemberian cendawan PGPF di Pembibitan (**Hasil data Transformasi (x+0.5)**)

perlakuan	KELOMPOK					Jumlah	Rata"
	I	II	III	IV	V		
<b>Aot</b>	2.10	1.61	1.87	1.41	1.58	8.58	1.72
<b>A1</b>	8.55	8.81	9.54	8.70	8.86	44.46	8.89
<b>A2</b>	7.67	6.32	7.74	6.12	7.30	35.15	7.03
<b>A3</b>	5.54	5.58	5.01	5.11	5.61	26.85	5.37
<b>A4</b>	8.74	8.08	7.71	7.42	8.58	40.54	8.11
<b>A5</b>	6.01	5.29	5.79	4.75	12.28	34.11	6.82
<b>Jumlah</b>	38.62	35.69	37.66	33.52	44.21	<b>189.70</b>	

Tabel Lampiran 4c. Sidik Ragam Rata-rata Luas Daun 28 HST pada perlakuan pemberian cendawan PGPF di Pembibitan (**Hasil data Transformasi (x+0.5)**)

SK	DB	JK	KT	F.HITUNG	KET.	F.TABEL	
						0.05	0.01
<b>KELOMPOK</b>	4	10.74	2.68	0.10	<b>tn</b>	2.78	4.22
<b>PERLAKUAN</b>	6	163.31	27.22	20.28	<b>**</b>	2.51	3.67
<b>GALAT</b>	24	32.20	1.34				
<b>TOTAL</b>	29	206.25					

**18.3 %**

an = tn = Berpengaruh tidak nyata

\*\*= Berpengaruh sangat nyata



Tabel Lampiran 5a. Rata-rata Jumlah daun 14 HST pada perlakuan pemberian cendawan PGPF di Pembibitan

perlakuan	KELOMPOK					JUMLAH	Rata''
	I	II	III	IV	V		
<b>Aot</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>A1</b>	1.00	0.50	0.50	0.00	1.50	3.50	0.70
<b>A2</b>	0.50	0.50	0.00	0.00	0.50	1.50	0.30
<b>A3</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>A4</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>A5</b>	0.00	0.00	0.00	0.00	1.00	1.00	0.20
<b>JUMLAH</b>	1.50	1.00	0.50	0.00	3.00	<b>6.00</b>	

Tabel Lampiran 5b. Rata-rata Jumlah daun 14 HST pada perlakuan pemberian cendawan PGPF di Pembibitan (**Hasil data Transformasi ( x+0.5)**)

perlakuan	Kelompok					Jumlah	Rata''
	I	II	III	IV	V		
<b>Aot</b>	0.71	0.71	0.71	0.71	0.71	3.54	0.71
<b>A1</b>	1.22	1.00	1.00	0.71	1.41	5.35	1.07
<b>A2</b>	1.00	1.00	0.71	0.71	1.00	4.41	0.88
<b>A3</b>	0.71	0.71	0.71	0.71	0.71	3.54	0.71
<b>A4</b>	0.71	0.71	0.71	0.71	0.71	3.54	0.71
<b>A5</b>	0.71	0.71	0.71	0.71	1.22	4.05	0.81
<b>JUMLAH</b>	5.05	4.83	4.54	4.24	5.76	<b>24.42</b>	

Tabel Lampiran 5c. Sidik Ragam Rata-rata Jumlah daun 14 HST. (**Hasil data Transformasi ( x+0.5)**)

SK	DB	JK	KT	F.HITUNG	KET.	F.TABEL	
						0.05	0.01
<b>KELOMPOK</b>	4	0.22	0.06	0.53	<b>tn</b>	2.87	4.43
<b>PERLAKUAN</b>	5	0.52	0.10	5.49	<b>**</b>	2.71	4.10
<b>GALAT</b>	20	0.38	0.02				
<b>TOTAL</b>	29	1.12					

16.9 %

an = tn = Berpengaruh tidak nyata

\*\*= Berpengaruh sangat nyata



Tabel Lampiran 6a. Rata-rata Jumlah daun 21 HST pada perlakuan pemberian cendawan PGPF di Pembibitan

perlakuan	KELOMPOK					JUMLAH	Rata"
	I	II	III	IV	V		
Aot	0.00	0.50	0.00	0.00	0.00	0.50	0.10
A1	2.00	0.50	1.00	0.00	2.00	5.50	1.10
A2	1.00	1.00	1.50	0.00	1.00	4.50	0.90
A3	1.00	1.00	1.00	0.00	0.00	3.00	0.60
A4	2.00	1.00	1.00	1.00	1.50	6.50	1.30
A5	0.50	0.00	1.00	0.00	2.50	4.00	0.80
<b>JUMLAH</b>	6.50	4.00	5.50	1.00	7.00	<b>24.00</b>	

Tabel Lampiran 6b. Sidik Ragam Rata-rata Jumlah daun 21 HST pada perlakuan pemberian cendawan PGPF di Pembibitan (**Hasil data Transformasi (  $x+0.5$ )**)

perlakuan	KELOMPOK					JUMLAH	Rata"
	I	II	III	IV	V		
Aot	0.71	1.00	0.71	0.71	0.71	3.83	0.77
A1	1.58	1.00	1.22	0.71	1.58	6.09	1.22
A2	1.22	1.22	1.41	0.71	1.22	5.80	1.16
A3	1.22	1.22	1.22	0.71	0.71	5.09	1.02
A4	1.58	1.22	1.22	1.22	1.41	6.67	1.33
A5	1.00	0.71	1.22	0.71	1.73	5.37	1.07
<b>JUMLAH</b>	7.32	6.38	7.02	4.76	7.37	<b>32.85</b>	

Tabel Lampiran 6c. Sidik Ragam Rata-rata Jumlah daun 21 HST pada perlakuan pemberian cendawan PGPF di Pembibitan (**Hasil data Transformasi (  $x+0.5$ )**)

SK	DB	JK	KT	F.HITUNG	KET.	F.TABEL	
						0.05	0.01
KELOMPOK	4	0.78	0.20	1.03	tn	2.87	4.43
PERLAKUAN	5	0.96	0.19	2.96	*	2.71	4.10
GALAT	20	1.29	0.06				
TOTAL	29	3.04					

23.2 %

an = tn = Berpengaruh tidak nyata

\*\*= Berpengaruh nyata



Tabel Lampiran 7a. Rata-rata Jumlah daun 28 HST pada perlakuan pemberian cendawan PGPF di Pembibitan

perlakuan	KELOMPOK					JUMLAH	Rata''
	I	II	III	IV	V		
Aot	0.50	0.50	0.00	0.00	0.00	1.00	0.20
A1	2.50	1.00	1.50	0.50	2.50	8.00	1.60
A2	1.00	1.00	1.50	0.50	1.50	5.50	1.10
A3	1.00	1.50	1.00	0.00	0.00	3.50	0.70
A4	2.00	1.00	1.00	1.00	1.50	6.50	1.30
A5	1.00	0.50	0.00	0.50	3.50	5.50	1.10
<b>JUMLAH</b>	8.00	5.50	5.00	2.50	9.00	<b>30.00</b>	

Tabel Lampiran 7b. Rata-rata Jumlah daun 28 HST pada perlakuan pemberian cendawan PGPF di Pembibitan (**Hasil data Transformasi (x+0.5)**)

perlakuan	KELOMPOK					JUMLAH	Rata''
	I	II	III	IV	V		
Aot	1.00	1.00	0.71	0.71	0.71	4.12	0.82
A1	1.73	1.22	1.41	1.00	1.73	7.10	1.42
A2	1.22	1.22	1.41	1.00	1.41	6.28	1.26
A3	1.22	1.41	1.22	0.71	0.71	5.28	1.06
A4	1.58	1.22	1.22	1.22	1.41	6.67	1.33
A5	1.22	1.00	0.71	1.00	2.00	5.93	1.19
<b>JUMLAH</b>	7.99	7.09	6.69	5.64	7.97	<b>35.38</b>	

Tabel Lampiran 7c. Sidik Ragam Rata-rata Jumlah daun 28 HST pada perlakuan pemberian cendawan PGPF di Pembibitan (**Hasil data Transformasi (x+0.5)**)

SK	DB	JK	KT	F.HITUNG	KET.	F.TABEL	
						0.05	0.01
<b>KELOMPOK</b>	4	0.78	0.20	1.03	<b>tn</b>	2.87	4.43
<b>PERLAKUAN</b>	5	0.96	0.19	2.96	*	2.71	4.10
<b>GALAT</b>	20	1.29	0.06				
<b>TOTAL</b>	29	3.04					

23.1 %

an = tn = Berpengaruh tidak nyata

\*\*= Berpengaruh nyata



Tabel Lampiran 8a. Rata-rata Tinggi Tanaman 7 HST pada perlakuan pemberian cendawan PGPF di Pembibitan

perlakuan	KELOMPOK					JUMLAH	Rata"
	I	II	III	IV	V		
Aot	0.70	0.60	0.75	0.35	0.60	3.00	0.60
A1	1.75	1.25	0.90	1.20	1.85	6.95	1.39
A2	1.10	1.75	1.50	1.55	1.10	7.00	1.40
A3	1.15	1.10	1.30	0.80	0.50	4.85	0.97
A4	1.20	1.05	1.25	1.25	1.00	5.75	1.15
A5	1.45	1.20	1.40	1.75	1.60	7.40	1.48
<b>JUMLAH</b>	7.35	6.95	7.10	6.90	6.65	<b>34.95</b>	

Tabel Lampiran 8b. Sidik Ragam Rata-rata Jumlah daun 7 HST pada perlakuan pemberian cendawan PGPF di Pembibitan

SK	DB	JK	KT	F.HITUNG	KET.	F.TABEL	
						0.05	0.01
<b>KELOMPOK</b>	4	0.04	0.01	0.02	<b>tn</b>	2.87	4.43
<b>PERLAKUAN</b>	5	2.81	0.56	6.78	<b>**</b>	2.71	4.10
<b>GALAT</b>	20	1.66	0.08				
<b>TOTAL</b>	29	4.52					

KK= 24.7 %

Keterangan = tn = Berpengaruh tidak nyata  
 \*\*= Berpengaruh sangat nyata



Tabel Lampiran 9a. Rata-rata Tinggi Tanaman 14 HST pada perlakuan pemberian cendawan PGPF di Pembibitan

perlakuan	KELOMPOK					JUMLAH	Rata"
	I	II	III	IV	V		
Aot	1.15	1.75	1.05	1.25	0.85	6.05	1.21
A1	3.10	3.15	3.15	2.75	3.20	15.35	3.07
A2	3.60	3.10	3.30	3.20	2.50	15.70	3.14
A3	2.30	2.25	2.60	1.35	1.75	10.25	2.05
A4	3.10	3.30	2.35	3.75	3.25	15.75	3.15
A5	3.15	3.75	2.25	2.10	4.75	16.00	3.20
<b>JUMLAH</b>	16.40	17.30	14.70	14.40	16.30	<b>79.10</b>	

Tabel Lampiran 9b Sidik Ragam Rata-rata Tinggi Tanaman 14 HST pada perlakuan pemberian cendawan PGPF di Pembibitan

SK	DB	JK	KT	F.HITUNG	KET.	F.TABEL	
						0.05	0.01
KELOMPOK	4	1.00	0.25	0.07	tn	2.87	4.43
PERLAKUAN	5	17.01	3.40	9.62	**	2.71	4.10
GALAT	20	7.07	0.35				
TOTAL	29	25.08					

KK= 22.6 %

Keterangan = tn = Berpengaruh tidak nyata

\*\*= Berpengaruh sangat nyata



Tabel Lampiran 10a. Rata-rata Tinggi Tanaman 21 HST pada perlakuan pemberian cendawan PGPF di Pembibitan

perlakuan	KELOMPOK					JUMLAH	Rata"
	I	II	III	IV	V		
<b>Aot</b>	3.15	4.80	2.50	3.50	3.40	17.35	3.47
<b>A1</b>	11.35	10.50	9.80	9.10	9.70	50.45	10.09
<b>A2</b>	8.75	6.80	8.75	8.25	7.15	39.70	7.94
<b>A3</b>	8.50	8.10	8.25	3.20	3.55	31.60	6.32
<b>A4</b>	11.35	9.30	11.75	10.25	9.25	51.90	10.38
<b>A5</b>	5.65	5.10	5.50	7.25	8.25	31.75	6.35
<b>JUMLAH</b>	48.75	44.60	46.55	41.55	41.30	<b>222.75</b>	

Tabel Lampiran 10b. Sidik Ragam Rata-rata Tinggi Tanaman 21 HST pada perlakuan pemberian cendawan PGPF di Pembibitan

SK	DB	JK	KT	F.HITUNG	KET.	F.TABEL	
						0.05	0.01
<b>KELOMPOK</b>	4	6.87	1.72	0.05	<b>tn</b>	2.87	4.43
<b>PERLAKUAN</b>	5	170.59	34.12	15.59	<b>**</b>	2.71	4.10
<b>GALAT</b>	20	43.78	2.19				
<b>TOTAL</b>	29	221.24					

KK= 19.9 %

Keterangan = tn = Berpengaruh tidak nyata

\*\*= Berpengaruh sangat nyata



Tabel Lampiran 11a. Rata-rata Tinggi Tanaman 28 HST pada perlakuan pemberian cendawan PGPF di Pembibitan

perlakuan	KELOMPOK					JUMLAH	Rata"
	I	II	III	IV	V		
Aot	4.65	5.05	4.20	4.25	4.40	22.55	4.51
A1	12.85	11.50	12.00	10.25	13.95	60.55	12.11
A2	10.85	9.60	11.80	9.00	8.45	49.70	9.94
A3	11.25	8.25	9.35	6.80	6.65	42.30	8.46
A4	14.00	11.90	12.35	12.55	13.75	64.55	12.91
A5	7.85	6.00	6.80	6.35	14.25	41.25	8.25
<b>JUMLAH</b>	61.45	52.30	56.50	49.20	61.45	<b>280.90</b>	

Tabel Lampiran 11b. Sidik Ragam Rata-rata Tinggi Tanaman 28 HST pada perlakuan pemberian cendawan PGPF di Pembibitan

SK	DB	JK	KT	F.HITUNG	KET.	F.TABEL	
						0.05	0.01
<b>KELOMPOK</b>	4	19.90	4.98	0.11	tn	2.87	4.43
<b>PERLAKUAN</b>	5	230.33	46.07	15.15	**	2.71	4.10
<b>GALAT</b>	20	60.81	3.04				
<b>TOTAL</b>	29	311.04					

KK= 18.6%

Keterangan = tn = Berpengaruh tidak nyata  
 \*\*= Berpengaruh sangat nyata



Tabel Lampiran 12a. Rata-rata Jumlah Stomata pada perlakuan pemberian cendawan PGPF di Lahan

perlakuan	KELOMPOK					JUMLAH	Rata"
	I	II	III	IV	V		
<b>Aot</b>	19.33	21.33	17.00	20.67	20.67	99.0	19.80
<b>A0K</b>	31.00	18.67	25.67	21.33	22.67	119.3	23.87
<b>A1</b>	19.33	21.33	17.00	20.67	20.67	99.0	19.80
<b>A2</b>	20.33	14.00	24.67	17.67	20.67	97.3	19.47
<b>A3</b>	23.33	23.33	18.33	30.33	23.33	118.7	23.73
<b>A4</b>	24.67	25.00	18.33	25.33	25.33	118.7	23.73
<b>A5</b>	21.00	14.33	18.67	25.67	20.33	100.0	20.00
<b>JUMLAH</b>	159.00	138.00	139.67	161.67	153.67	<b>752.00</b>	

Tabel Lampiran 12b. Sidik Ragam Rata-rata Jumlah Stomata PGPF pada perlakuan pemberian cendawan PGPF di Lahan

SK	DB	JK	KT	F.HITUNG	KET.	F.TABEL	
						0.05	0.01
<b>KELOMPOK</b>	4	68.65	17.16	0.74	<b>tn</b>	2.78	4.22
<b>PERLAKUAN</b>	6	138.70	23.12	1.96	<b>tn</b>	2.51	3.67
<b>GALAT</b>	24	283.62	11.82				
<b>TOTAL</b>	34	490.97					

KK= 16.0%

Keterangan = tn = Berpengaruh tidak nyata



Tabel Lampiran 13a. Rata-rata Kerapatan Stomata pada perlakuan pemberian cendawan PGPF di Lahan

perlakuan	KELOMPOK					JUMLAH	Rata''
	I	II	III	IV	V		
<b>Aot</b>	146.04	87.94	120.92	100.50	106.79	562.19	112.44
<b>A0K</b>	91.08	100.50	80.09	97.36	97.36	466.40	93.28
<b>A1</b>	95.79	65.96	116.21	83.23	97.36	458.55	91.71
<b>A2</b>	109.93	109.93	86.37	142.90	109.93	559.05	111.81
<b>A3</b>	116.21	117.78	86.37	119.35	119.35	559.05	111.81
<b>A4</b>	98.93	67.53	87.94	120.92	95.79	471.11	94.22
<b>A5</b>	108.36	95.79	102.07	86.37	97.36	489.96	97.99
<b>JUMLAH</b>	766.34	645.42	679.97	750.64	723.94	3566.31	

Tabel Lampiran 13b. Sidik Ragam Rata-rata kerapatan stomata pada perlakuan pemberian cendawan PGPF di Lahan

SK	DB	JK	KT	F.HITUNG	KET.	F.TABEL	
						0.05	0.01
<b>KELOMPOK</b>	4	1434.12	358.53	0.77	<b>tn</b>	2.78	4.22
<b>PERLAKUAN</b>	6	2799.34	466.56	1.75	<b>tn</b>	2.51	3.67
<b>GALAT</b>	24	6384.29	266.01				
<b>TOTAL</b>	34	10617.76					

KK= 16.01%

Keterangan = tn = Berpengaruh tidak nyata



Tabel Lampiran 14a. Rata-rata Luas Bukaannya Stomata pada perlakuan pemberian cendawan PGPF di Lahan

perlakuan	KELOMPOK					JUMLAH	Rata"
	I	II	III	IV	V		
Aot	0.00088	0.00070	0.00020	0.00043	0.00041	0.00262	0.00052
A0K	0.00093	0.00061	0.00058	0.00082	0.00074	0.00369	0.00074
A1	0.00161	0.00035	0.00018	0.00053	0.00062	0.00329	0.00066
A2	0.00083	0.00096	0.00012	0.00109	0.00062	0.00360	0.00072
A3	0.00056	0.00068	0.00015	0.00069	0.00052	0.00261	0.00052
A4	0.00048	0.00028	0.00014	0.00080	0.00051	0.00220	0.00044
A5	0.00055	0.00034	0.00045	0.00072	0.00059	0.00266	0.00053
<b>JUMLAH</b>	0.006	0.004	0.002	0.005	0.004	<b>0.021</b>	

Tabel Lampiran 14b. Rata-rata Luas Bukaannya Stomata pada perlakuan pemberian cendawan PGPF di Lahan (**Hasil data Transformasi ( x+0.5)**)

perlakuan	KELOMPOK					JUMLAH	Rata"
	I	II	III	IV	V		
Aot	0.7077	0.7076	0.7073	0.7074	0.7074	3.5374	0.7075
A0K	0.7078	0.7075	0.7075	0.7077	0.7076	3.5381	0.7076
A1	0.7082	0.7074	0.7072	0.7075	0.7075	3.5379	0.7076
A2	0.7077	0.7078	0.7072	0.7079	0.7075	3.5381	0.7076
A3	0.7075	0.7076	0.7072	0.7076	0.7075	3.5374	0.7075
A4	0.7074	0.7073	0.7072	0.7077	0.7075	3.5371	0.7074
A5	0.7075	0.7073	0.7074	0.7076	0.7075	3.5374	0.7075
<b>JUMLAH</b>	4.95	4.95	4.95	4.95	4.95	<b>24.763</b>	

Tabel Lampiran 14c. Sidik Ragam Rata-rata Luas Bukaannya Stomata pada perlakuan pemberian cendawan PGPF di Lahan (**Data Transformasi ( x+0.5)**)

SK	DB	JK	KT	F.HITUNG	KET.	F.TABEL	
						0.05	0.01
<b>KELOMPOK</b>	4	0.000001	0.000000	5.63	**	2.78	4.22
<b>PERLAKUAN</b>	6	0.000000	0.000000	1.11	<b>tn</b>	2.51	3.67
<b>LAT</b>	24	0.000001	0.000000				
<b>TAL</b>	34	0.000002					

0.02%

an = tn = Berpengaruh tidak nyata



Tabel Lampiran 15a. Rata-rata Rata-rata Jumlah umbi pada perlakuan pemberian cendawan PGPF di Lahan

perlakuan	KELOMPOK					JUMLAH	Rata"
	I	II	III	IV	V		
<b>Aot</b>	32.00	33.50	25.00	19.00	19.00	128.50	25.70
<b>AOK</b>	12.50	26.50	28.50	23.00	24.00	114.50	22.90
<b>A1</b>	25.50	38.50	23.50	25.00	24.00	136.50	27.30
<b>A2</b>	27.50	25.50	31.00	24.50	27.00	135.50	27.10
<b>A3</b>	25.00	35.00	21.00	28.50	33.00	142.50	28.50
<b>A4</b>	27.00	28.00	21.50	28.50	32.00	137.00	27.40
<b>A5</b>	29.00	23.00	25.00	30.50	22.00	129.50	25.90
<b>JUMLAH</b>	178.50	210.00	175.50	179.00	181.00	<b>924.00</b>	

Tabel Lampiran 15a. Sidik Ragam Rata-rata Jumlah umbi pada perlakuan pemberian cendawan PGPF di Lahan

SK	DB	JK	KT	F.HITUNG	KET.	F.TABEL	
						0.05	0.01
<b>KELOMPOK</b>	4	115.61	28.90	1.76	<b>tn</b>	2.78	4.22
<b>PERLAKUAN</b>	6	98.50	16.42	0.60	<b>tn</b>	2.51	3.67
<b>GALAT</b>	24	656.79	27.37				
<b>TOTAL</b>	34	870.90					

KK= 19.8%

Keterangan = tn = Berpengaruh tidak nyata



Tabel Lampiran 16a. Rata-rata Rata-rata Berat Umbi pada perlakuan pemberian cendawan PGPF di Lahan

perlakuan	KELOMPOK					JUMLAH	Rata''
	I	II	III	IV	V		
<b>Aot</b>	0.55	0.55	0.50	0.35	0.43	2.38	0.48
<b>A0K</b>	0.6	1.00	0.73	0.73	0.65	3.70	0.74
<b>A1</b>	0.68	1.00	1.00	0.63	0.75	4.05	0.81
<b>A2</b>	0.80	0.73	0.95	0.80	0.70	3.98	0.80
<b>A3</b>	0.88	1.00	0.70	0.65	0.85	4.08	0.82
<b>A4</b>	0.80	0.73	0.60	0.78	0.98	3.88	0.78
<b>A5</b>	0.78	0.48	0.75	0.75	0.98	3.73	0.75
<b>JUMLAH</b>	5.08	5.48	5.23	4.68	5.33	<b>25.78</b>	

Tabel Lampiran 16b. Sidik Ragam Rata-rata Rata-rata Berat Umbi pada perlakuan pemberian cendawan PGPF di Lahan

SK	DB	JK	KT	F.HITUNG	KET.	F.TABEL	
						0.05	0.01
<b>KELOMPOK</b>	4	0.05	0.01	0.19	tn	2.78	4.22
<b>PERLAKUAN</b>	6	0.42	0.07	3.27	*	2.51	3.67
<b>GALAT</b>	24	0.52	0.02				
<b>TOTAL</b>	34	1.00					

KK= 10.4%

Keterangan = tn = Berpengaruh tidak nyata  
\* = Berpengaruh nyata



Tabel Lampiran 17a. Rata-rata Jumlah Stomata pada perlakuan pemberian cendawan Antagonis di Lahan

perlakuan	KELOMPOK					JUMLAH	Rata"
	I	II	III	IV	V		
<b>Bot</b>	18.67	17.33	20.67	18.33	18.67	93.67	18.73
<b>B0K</b>	15.67	13.00	11.67	13.67	17.67	71.67	14.33
<b>B1</b>	18.67	17.33	20.67	18.33	18.67	93.67	18.73
<b>B2</b>	24.00	22.00	22.67	24.33	24.00	117.00	23.40
<b>B3</b>	20.67	14.33	22.67	19.67	21.33	98.67	19.73
<b>B4</b>	20.00	15.00	25.33	23.67	24.33	108.33	21.67
<b>B5</b>	26.67	28.00	25.33	31.00	27.67	138.67	27.73
<b>JUMLAH</b>	144.33	127.00	149.00	149.00	152.33	<b>721.67</b>	

Tabel Lampiran 17b. Sidik Ragam Rata-rata Jumlah Stomata pada perlakuan pemberian cendawan Antagonis di Lahan

SK	DB	JK	KT	F.HITUNG	KET.	F.TABEL	
						0.05	0.01
<b>KELOMPOK</b>	4	58.29	14.57	0.16	<b>tn</b>	2.78	4.22
<b>PERLAKUAN</b>	6	534.25	89.04	19.36	<b>**</b>	2.51	3.67
<b>GALAT</b>	24	110.38	4.60				
<b>TOTAL</b>	34	702.92					

KK= 10.4%

Keterangan = tn = Berpengaruh tidak nyata

\*\*= Berpengaruh sangat nyata



Tabel Lampiran 18a. Rata-rata Kerapatan Stomata pada perlakuan pemberian cendawan Antagonis di Lahan

perlakuan	KELOMPOK					JUMLAH	Rata"
	I	II	III	IV	V		
<b>Bot</b>	73.81	61.24	54.96	64.39	83.23	337.63	67.53
<b>BoK</b>	87.94	81.66	97.36	86.37	87.94	441.27	88.25
<b>B1</b>	113.07	103.64	106.79	114.64	113.07	551.20	110.24
<b>B2</b>	97.36	67.53	106.79	92.65	100.50	464.83	92.97
<b>B3</b>	94.22	70.67	119.35	111.50	114.64	510.37	102.07
<b>B4</b>	125.63	131.91	119.35	146.04	130.34	653.27	130.65
<b>B5</b>	75.38	108.36	168.03	108.36	80.09	540.21	108.04
<b>JUMLAH</b>	667.41	625.01	772.62	723.94	709.81	3498.79	

Tabel Lampiran 18b. Sidik Ragam Rata-rata kerapatan stomata pada perlakuan pemberian cendawan Antagonis di Lahan

SK	DB	JK	KT	F.HITUNG	KET.	F.TABEL	
						0.05	0.01
<b>KELOMPOK</b>	4	1804.17	451.04	0.23	<b>tn</b>	2.78	4.22
<b>PERLAKUAN</b>	6	11777.65	1962.94	6.49	<b>**</b>	2.51	3.67
<b>GALAT</b>	24	7256.15	302.34				
<b>TOTAL</b>	34	20837.98					

KK= 10.4%

Keterangan = tn = Berpengaruh tidak nyata

\*\*= Berpengaruh sangat nyata



Tabel Lampiran 19a. Rata-rata Luas Bukaannya Stomata pada perlakuan pemberian cendawan Antagonis di Lahan

perlakuan	KELOMPOK					JUMLAH	Rata"
	I	II	III	IV	V		
Bot	0.0009	0.0006	0.0002	0.0004	0.0004	0.0025	0.0005
B0K	0.0005	0.0004	0.0006	0.0008	0.0007	0.0030	0.0006
B1	0.0019	0.0005	0.0002	0.0005	0.0006	0.0038	0.0008
B2	0.0007	0.0006	0.0001	0.0011	0.0006	0.0031	0.0006
B3	0.0005	0.0004	0.0002	0.0007	0.0005	0.0022	0.0004
B4	0.0006	0.0005	0.0001	0.0008	0.0005	0.0026	0.0005
B5	0.0004	0.0004	0.0004	0.0007	0.0006	0.0025	0.0005
<b>JUMLAH</b>	0.0054	0.0035	0.0018	0.0051	0.0040	<b>0.0198</b>	

Tabel Lampiran 19a. Rata-rata Luas Bukaannya Stomata pada perlakuan pemberian cendawan Antagonis di Lahan (**Hasil data Transformasi (x+0.5)**)

perlakuan	KELOMPOK					JUMLAH	Rata"
	I	II	III	IV	V		
Bot	0.708	0.708	0.707	0.707	0.707	3.537	0.707
BoK	0.707	0.707	0.708	0.708	0.708	3.538	0.708
B1	0.708	0.707	0.707	0.707	0.708	3.538	0.708
B2	0.708	0.708	0.707	0.708	0.708	3.538	0.708
B3	0.707	0.707	0.707	0.708	0.707	3.537	0.707
B4	0.708	0.707	0.707	0.708	0.707	3.537	0.707
B5	0.707	0.707	0.707	0.708	0.708	3.537	0.707
<b>JUMLAH</b>	4.95	4.95	4.95	4.95	4.95	<b>24.763</b>	

Tabel Lampiran 19b. Sidik Ragam Rata-rata Luas Bukaannya Stomata pada perlakuan pemberian cendawan Antagonis di Lahan (**Hasil data Transformasi (x+0.5)**)

SK	DB	JK	KT	F.HITUNG	KET.	F.TABEL	
						0.05	0.01
KELOMPOK	4	0.000001	0.00000015	3.69	*	2.78	4.22
PERLAKUAN	6	0.000000	0.00000003	0.71	tn	2.51	3.67
GALAT	24	0.000001	0.00000004				
TOTAL	34	0.000002					

0.03%

an = tn = Berpengaruh tidak nyata



Tabel Lampiran tabel 20a. Rata-rata tingkat serangan patogen *Phytophthora colocasiae* 5 hari setelah perlakuan (hsp) pada perlakuan pemberian cendawan Antagonis di Lahan

Perlakuan	Kelompok					Total	Rata-rata
	1	2	3	4	5		
BoT (Kontrol -)	0	0	0	0	0	0	0
BoK (Kontrol +)	6	4	8	10	6	34	6.8
B1 (RTP8)	0	0	0	2	0	2	0.4
B2 (RTB2)	6	0	2	2	2	12	2.4
B3 (RTM28)	4	6	2	2	0	14	2.8
B4 (RTM29)	4	2	2	0	0	8	1.6
B5 (RTM1)	6	4	2	0	0	12	2.4
Total	26	16	16	16	8	82	

Tabel Lampiran tabel 20b. Sidik Ragam Rata - rata tingkat serangan patogen *P. colocasiae* 5 hsp pada perlakuan pemberian cendawan Antagonis di Lahan

SK	DB	JK	KT	F-hitung	ket.	F.tabel	
						0.05	0.01
Kelompok	4	23.31429	5.828571429	1.842486	tn	2.76	4.18
perlakuan	5	149.4857	29.89714286	9.450867	**	2.60	3.85
Galat	25	79.08571	3.163428571				
Total	34	251.8857					
kk	23.1%						

Keterangan : tn : tidak nyata  
 \*\* : berpengaruh sangat nyata



Tabel Lampiran tabel 21a. Rata-rata tingkat serangan patogen *P. colocasiae* 2 minggu setelah perlakuan (2 msp) pada perlakuan pemberian cendawan Antagonis di Lahan

Perlakuan	Kelompok					Total	Rata-rata
	1	2	3	4	5		
BoT (Kontrol -)	0	0	0	0	0	0	0
BoK (Kontrol +)	12	22	20	20	22	96	19.2
B1 (RTP8)	2	0	2	2	0	6	1.2
B2 (RTB2)	8	10	10	2	2	32	6.4
B3 (RTM28)	10	10	8	8	0	36	7.2
B4 (RTM29)	4	20	2	2	2	30	6
B5 (RTM1)	8	8	10	8	0	34	6.8
Total	44	70	52	42	26	234	

Tabel Lampiran tabel 21b. Sidik ragam Rata-rata tingkat serangan patogen *P. colocasiae* 2 msp pada perlakuan pemberian cendawan Antagonis di Lahan

SK	DB	JK	KT	F-hitung	ket.	F.tabel	
						0.05	0.01
Kelompok	4	146.9714	36.74286	2.473077	tn	2.76	4.18
perlakuan	5	1161.143	232.2286	15.63077	**	2.60	3.85
Galat	25	371.4286	14.85714				
Total	34	1679.543					

Keterangan : tn : tidak nyata  
 \*\* : berpengaruh sangat nyata



Tabel Lampiran tabel 22a. Rata-rata tingkat serangan patogen *P. colocasiae* 4 msp pada perlakuan pemberian cendawan Antagonis di Lahan

Perlakuan	Kelompok					Total	Rata-rata
	1	2	3	4	5		
BoT (Kontrol -)	0	0	0	0	0	0	0
BoK (Kontrol +)	62	56	48	54	58	278	55.6
B1 (RTP8)	30	26	10	26	16	108	21.6
B2 (RTB2)	24	18	24	28	12	106	21.2
B3 (RTM28)	42	20	26	16	18	122	24.4
B4 (RTM29)	24	24	30	22	16	116	23.2
B5 (RTM1)	28	16	32	22	40	138	27.6
Total	210	160	170	168	160	868	

Tabel Lampiran tabel 22b. Sidik ragam Rata-rata tingkat serangan patogen *P. colocasiae* 4 msp pada perlakuan pemberian cendawan Antagonis di Lahan

SK	DB	JK	KT	F-hitung	ket.	F.tabel	
						0.05	0.01
Kelompok	4	248.4571	62.11429	1.322771	tn	2.76	4.18
perlakuan	5	7987.2	1597.44	34.01869	**	2.60	3.85
Galat	25	1173.943	46.95771				
Total	34	9409.6					

Keterangan : tn : tidak nyata  
 \*\* : berpengaruh sangat nyata



Tabel Lampiran tabel 23a. Rata - rata tingkat serangan patogen *P. colocasiae* 6 msp pada perlakuan pemberian cendawan Antagonis di Lahan

Perlakuan	Kelompok					Total	Rata-rata
	1	2	3	4	5		
BoT (Kontrol -)	0	0	0	0	0	0	0
BoK (Kontrol +)	82	74	82	80	82	400	80
B1 (RTP8)	46	50	24	54	44	218	43.6
B2 (RTB2)	50	36	44	56	40	226	45.2
B3 (RTM28)	62	34	54	38	50	238	47.6
B4 (RTM29)	40	54	60	46	48	248	49.6
B5 (RTM1)	44	60	58	34	52	248	49.6
Total	324	308	322	308	316	1578	

Tabel Lampiran tabel 23b. Sidik Ragam Rata - rata tingkat serangan patogen *P. colocasiae* 6 msp pada perlakuan pemberian cendawan Antagonis di Lahan

SK	DB	JK	KT	F-hitung	ket.	F.tabel	
						0.05	0.01
Kelompok	4	32.45714	8.114286	0.099775	tn	2.76	4.18
perlakuan	5	16505.14	3301.029	40.59022	**	2.60	3.85
Galat	25	2033.143	81.32571				
Total	34	18570.74					

Keterangan : tn : tidak nyata  
 \*\* : berpengaruh sangat nyata



Tabel Lampiran tabel 24a. Rata - rata tingkat serangan patogen *P. colocasiae* 8 msp pada perlakuan pemberian cendawan Antagonis di Lahan

Perlakuan	Kelompok					Total	Rata-rata
	1	2	3	4	5		
BoT (Kontrol -)	0	0	0	0	0	0	0
BoK (Kontrol +)	100	100	100	100	100	500	100
B1 (RTP8)	56	58	28	64	48	254	50.8
B2 (RTB2)	68	52	64	84	44	312	62.4
B3 (RTM28)	80	58	58	54	82	332	66.4
B4 (RTM29)	60	56	90	62	68	336	67.2
B5 (RTM1)	64	72	70	58	70	334	66.8
Total	428	396	410	422	412	2068	

Tabel Lampiran tabel 24b. Sidik Ragam Rata - rata tingkat serangan patogen *P. colocasiae* 8 msp pada perlakuan pemberian cendawan Antagonis di Lahan

SK	DB	JK	KT	F-hitung	ket.	F.tabel	
						0.05	0.01
Kelompok	4	86.17143	21.54285714	0.167122	tn	2.76	4.18
perlakuan	5	27117.94	5423.588571	42.07426	**	2.60	3.85
Galat	25	3222.629	128.9051429				
Total	34	30426.74					

Keterangan : tn : tidak nyata  
 \*\* : berpengaruh sangat nyata



Tabel Lampiran 25a. Rata-rata Rata-rata Jumlah umbi pada perlakuan pemberian cendawan Antagonis di Lahan

perlakuan	KELOMPOK					JUMLAH	Rata''
	I	II	III	IV	V		
<b>Bot</b>	28.00	22.00	15.50	9.00	35.50	110.00	22.00
<b>B0K</b>	13.00	5.50	10.00	7.50	8.50	44.50	8.90
<b>B1</b>	24.50	30.50	19.00	32.00	29.00	135.00	27.00
<b>B2</b>	29.50	22.00	29.50	26.00	10.50	117.50	23.50
<b>B3</b>	19.00	26.50	16.00	15.50	27.50	104.50	20.90
<b>B4</b>	20.50	22.00	28.50	15.50	20.50	107.00	21.40
<b>B5</b>	14.50	22.50	21.00	16.00	21.50	95.50	19.10
<b>JUMLAH</b>	149.00	151.00	139.50	121.50	153.00	<b>714.00</b>	

Tabel Lampiran 25b. Sidik Ragam Rata-rata Jumlah umbi pada perlakuan pemberian cendawan Antagonis di Lahan

SK	DB	JK	KT	F.HITUNG	KET.	F.TABEL	
						0.05	0.01
<b>KELOMPOK</b>	4	96.33	24.08	0.15	<b>tn</b>	2.78	4.22
<b>PERLAKUAN</b>	6	954.60	159.10	3.83	<b>**</b>	2.51	3.67
<b>GALAT</b>	24	996.47	41.52				
<b>TOTAL</b>	34	2047.40					

KK= 30.1%

Keterangan = tn = Berpengaruh tidak nyata

\*\* = Berpengaruh sangat nyata



Tabel Lampiran 26a. Rata-rata Berat umbi pada perlakuan pemberian cendawan Antagonis di Lahan

perlakuan	KELOMPOK					JUMLAH	Rata"
	I	II	III	IV	V		
<b>Aot</b>	0.80	0.55	0.48	0.43	0.88	3.13	0.63
<b>A0K</b>	0.2	0.13	0.20	0.20	0.18	0.90	0.18
<b>B1</b>	0.63	0.78	0.60	0.93	0.78	3.70	0.74
<b>B2</b>	0.78	0.63	0.83	0.90	0.40	3.53	0.71
<b>B3</b>	0.73	1.05	0.58	0.50	0.70	3.55	0.71
<b>B4</b>	0.63	0.58	0.70	0.78	0.75	3.43	0.69
<b>B5</b>	0.28	0.43	0.58	0.58	0.95	2.80	0.56
<b>JUMLAH</b>	4.03	4.13	3.95	4.30	4.63	<b>21.03</b>	

Tabel Lampiran 26b. Sidik Ragam Rata-rata Berat umbi pada perlakuan pemberian cendawan Antagonis di Lahan

SK	DB	JK	KT	F.HITUNG	KET.	F.TABEL	
						0.05	0.01
<b>KELOMPOK</b>	4	0.04	0.01	0.05	<b>tn</b>	2.78	4.22
<b>PERLAKUAN</b>	6	1.14	0.19	5.65	<b>**</b>	2.51	3.67
<b>GALAT</b>	24	0.81	0.03				
<b>TOTAL</b>	34	1.99					

KK= 30.6%

Keterangan = tn = Berpengaruh tidak nyata

\*\* = Berpengaruh sangat nyata



Lampiran 27. Tanaman talas yang diaplikasikan caendaan PGPF di pembibitan pada akhir pengamatan (28 hst)



Lampiran 28. Umbi Tanaman Talas yang diberi perlakuan pemberian Patogen *Phytophthora colocasiae* dan Tanpa Pemberian Cendawan Antagonis (BoK) di Pertanaman talas



Lampiran 29. Umbi Tanaman Talas yang diberi perlakuan pemberian Patogen *Phytophthora colocasiae* dan Pemberian Cendawan Antagonis RTP8 (*Trichoderma asperellum*) (B1) di Pertanaman talas

