

DAFTAR PUSTAKA

- Abdullah, A., Nurjanah, N., & Nasution, A. I. S. 2021. Karakteristik Fraksi Aktif Biopigmen Fukosantin Rumput Laut Cokelat sebagai Antioksidan dan UV-protector. *Jurnal Pengolahan Hasil Perikanan Indonesia*, 24(1), 131-147. <https://doi.org/10.17844/jphpi.v24i1.35411>
- Ahmed, A. A., & El-Mahdy, A. 2022. Improving seed germination and seedling growth of maize (*Zea mays*, L.) seed by soaking in water and *Moringa oleifera* leaf extract. *Curr. Chem. Lett.*, 11(2), 147-156. <http://dx.doi.org/10.5267/j.ccl.2022.2.005>
- Akbay, B., & Yalçın, F. S. 2025. Effect of ZnO nano priming on germination and root length of soybean seeds (*Glycine max* L.). *International Journal of Secondary Metabolite*, 12(1), 204-215. <https://doi.org/10.21448/ijsm.1527985>
- Al-Salhy, S. J., & Rasheed, A. A. 2020. Effect of mungbean seed priming methods and duration on seed germination and seedling vigour. *Plant Arch*, 20(1), 27-31.
- Alhammad, B. A., Ahmad, A., Seleiman, M. F., & Tola, E. 2023. Seed priming with nanoparticles and 24-epibrassinolide improved seed germination and enzymatic performance of *Zea mays* L. in salt-stressed soil. *Plants*, 12(4), 690. <https://doi.org/10.3390/plants12040690>
- Ali, M., Hayat, S., Ahmad, H., Ghani, M. I., Amin, B., Atif, M. J., & Cheng, Z. 2019. Priming of *Solanum melongena* L. seeds enhances germination, alters antioxidant enzymes, modulates ROS, and improves early seedling growth: indicating aqueous garlic extract as seed-priming bio-stimulant for eggplant production. *Applied Sciences*, 9(11), 2203.
- Allam, E., El-Darier, S., Ghattass, Z., Fakhry, A., & Elghobashy, R. M. 2024. Application of chitosan nanopriming on plant growth and secondary metabolites of *Pancratium maritimum* L. *BMC Plant Biology*, 24(1), 466.
- Anand, K. V., Anugraga, A. R., Kannan, M., Singaravelu, G., & Govindaraju, K. 2020. Bio-engineered magnesium oxide nanoparticles as nano-priming agent for enhancing seed germination and seedling vigour of green gram (*Vigna radiata* L.). *Materials Letters*, 271, 127792. <https://doi.org/10.1016/j.matlet.2020.127792>

- Arisandi, N., Wahdah, R., & Rusmayadi, G. 2020. Peningkatan Performa Viabilitas Benih Beberapa Varietas Padi (*Oryza sativa L.*) Dengan Organik Priming Ekstrak Tauge. *EnviroScienteae*, 16(2), 309-317. <http://dx.doi.org/10.20527/es.v16i2.9662>
- Battacharyya, D., Babgohari, M. Z., Rathor, P., & Prithiviraj, B. 2015. Seaweed extracts as biostimulants in horticulture. *Scientia horticulturae*, 196, 39-48. <https://doi.org/10.1016/j.scienta.2015.09.012>
- Badriyah, L., & Manggara, A. B. 2017. Penetapan Kadar Vitamin C Pada Cabai Merah (*Capsicum annuum L.*) Menggunakan Metode Spektrofotometri UV- VIS. *Jurnal Wiyata*, 2(1), 25-28. <http://dx.doi.org/10.56710/wiyata.v2i1.31>
- Behzadi, S., Serpooshan, V., Tao, W., Hamaly, M. A., Alkawareek, M. Y., Dreaden, E. C., Brown, D., Alkilany A. M., Farokhzad O. C., Mahmoudi, M. 2017. Cellular uptake of nanoparticles: journey inside the cell. *Chem Soc Rev*, 46(14), 4218–44. <https://doi.org/10.1039%2Fc6cs00636a>
- Bhuvaneshwari, S., Padmalochana, K., Natarajan, A., & Janani, P. 2024. Green synthesis and characterization of ZnO nanoparticles using seaweed extract of Halimeda opuntia and their application in seed germination of maize. *Biomass Conversion and Biorefinery*, 1-17. <https://doi.org/10.1007/s13399-024-05713-z>
- Biradar, S., Nagarathna, T. K., & Praveen, H. G. 2023. Nano-priming with zinc and boron enhances seed germination and seedling vigour in sunflower (*Helianthus annuus L.*). *Environment and Ecology*, 41, (3D), 2068-2079. <http://dx.doi.org/10.60151/envec/PZGH6062>
- Bissoli, G., Bono, M., Martínez-Almonacid, I., Moreno-Peris, E., Renard, J., Espinosa, A., ... & Bueso, E. 2022. Seed coat lignification level is crucial in *Capsicum* spp seed longevity. *Physiologia Plantarum*, 174(1), e13600. <https://doi.org/10.1111/ppl.13600>
- Choudhury, A., Bordolui, S. K., & Ray, J. 2023. Optimizing priming concentration and duration of PEG 6000 for improving seed germination and vigour in chickpea (*Cicer arietinum L.*). *Environment and Ecology*, 41(3C), 1953-1959. <http://dx.doi.org/10.60151/envec/WYKC4262>
- Chougala, L. D., MS, H., & Siddaraju, R. 2024. Seed Polymer Coating with ZnO, SiO₂ and TiO₂ Nanoparticles: An Innovative Seed Quality Enhancement Technique in Sweet Pepper. *Seed Research*, 52(2), 124-129. <https://doi.org/10.56093/sr.v52i2.163014>

- Das, C. K., Jangir, H., Kumar, J., Verma, S., Mahapatra, S.S., Philip, D., Srivastava, G., Das, M. 2018. Nano-Pyrite Seed Dressing: A Sustainable Design for NPK Equivalent Rice Production. *Nanotechnol. Environ. Eng.* 3, 14. <https://doi.org/10.1007/s41204-018-0043-1>
- Deyab, M., Elkatony, T., Ward, F. 2016. Qualitative and quantitative analysis of phytochemical studies on brown seaweed *Dictyota dichotoma*. *IJEDR*, 4(2), 674-8.
- Dhillon, B. S., Kumar, V., Sagwal, P., Kaur, N., Singh Mangat, G., & Singh, S. 2021. Seed priming with potassium nitrate and gibberellic acid enhances the performance of dry direct seeded rice (*Oryza sativa L.*) in north-western India. *Agronomy*, 11(5), 849. <https://doi.org/10.3390/agronomy11050849>
- Diansyah, A. 2017. Respons pertumbuhan dan produksi tanaman cabai keriting (*Capsicum annuum L.*) terhadap aplikasi pupuk kompos dan pupuk anorganik di polibag. *Jurnal Hortikultura Indonesia*, 8(3), 203-208. <https://doi.org/10.29244/jhi.8.3.203-208>
- Ediwirman, E., Salfiati, S., & Putra, O. 2023. West Sumatra local chili genotype appearance test. *Jurnal Agrotek Ummat*, 10(3), 251-260. <http://dx.doi.org/10.31764/jau.v10i3.15982>
- Ellya, H., & Wahdah, R. 2022. *Priming Benih Untuk Memperbaiki Performa Mutu Benih Kacang Tunggak Nagara*. Banyubening Cipta Sejahtera. Banjar Baru.
- Erniati., Zakaria, F. R., Prangdimurti, E., Adawiyah, D. R. 2016. Seaweed potential: bioactive compounds studies and its utilization as a functional food product. *Aquatic Sciences Journal*, 3(1), 12-17
- Fadhillah, Z., Hasanuddin, H., & Harnelly, E. 2022. Pengaruh Ekstrak Kecambah Kacang Hijau (*Vigna radiata L.*) dan Lama Perendaman Terhadap Viabilitas Benih Tomat (*Solanum lycopersicum L.*) Kadaluarsa. *Jurnal Bioleuser*, 6(2). <https://doi.org/10.24815/bioleuser.v6i2.40953>
- Farida, F. 2018. Respon Perkecambahan Benih Kopi Pada Berbagai Tingkat Kemasakan Buah Dengan Aplikasi Zat Pengatur Tumbuh. *Ziraa'ah Majalah Ilmiah Pertanian*, 43(2), 166-172. <http://dx.doi.org/10.31602/zmip.v43i2.1286>
- Farida, N., Sudika, I. W., & Rahayu, S. 2022. Pengaruh Konsentrasi dan Lama Perendaman Polietilen Glikol (PEG) 6000 Terhadap Viabilitas Benih dan Pertumbuhan Vegetatif Tanaman Jagung (*Zea mays L.*) pada Periode Simpan Dua Tahun. *Jurnal Ilmiah Mahasiswa Agrokompleks*, 1(3), 222-232. <https://doi.org/10.29303/jima.v1i3.1459>

- Farooq, T., Akram, M. N., Hameed, A., Ahmed, T., & Hameed, A. 2022. Nanopriming-mediated memory imprints reduce salt toxicity in wheat seedlings by modulating physiobiochemical attributes. *BMC Plant Biology*, 22(1), 540. <https://doi.org/10.1186/s12870-022-03912-2>
- Febriani, W. D., Noli, Z. A., & Mansyurdin. 2023. Effect Of Biopriming With *Padina Minor* Seaweed Extract With Amino Acid Addition On Germination Of Several Varieties Of Rice (*Oryza Sativa L.*). *IJPST: International Journal of Progressive Sciences and Technologies*, 36(2), 322-326. <http://dx.doi.org/10.52155/ijpsat.v36.2.4950>
- Fernandes, T. 2018. Karakterisasi dan Identifikasi Senyawa Aktif Pigmen *Sargassum polycystum* dan *Padina minor*. Skripsi Fakultas Perikanan dan Ilmu Kelautan, Intitut Pertanian Bogor.
- Granata, A., Capozzi, F., Gaglione, A., Riccardi, R., Spigno, P., Giordano, S., Sorrentino, M. C., Spagnuolo, V. 2024. Seed priming enhances seed germination and plant growth in four neglected cultivars of *Capsicum annuum* L. *PeerJ*, 12, e18293 <https://doi.org/10.7717/peerj.18293>
- Guiry, M. D. & Guiry, G. M. 2022. AlgaeBase. World-wide electronic publication, National University of Ireland, Galway. <https://www.algaebase.org>; searched on 26 April 2024.
- Hamouda, M. M., Saad-Allah, K. M., & Gad, D. 2022. Potential of seaweed extract on growth, physiological, cytological and biochemical parameters of wheat (*Triticum aestivum* L.) seedlings. *Journal of Soil Science and Plant Nutrition*, 22(2), 1818-1831. <https://doi.org/10.1007/s42729-022-00774-3>
- Handayani, W., Tanadi, R. O., & Umar, A. 2025. The Effect of Silver Nanoparticles Stabilized with Tannic Acid for Nano-Priming on *Zea mays* L. Seeds Germination. *Caraka Tani: Journal of Sustainable Agriculture*, 40(1), 1-17. <https://doi.org/10.20961/carakatani.v40i1.85977>
- Hasanuzzaman, M., & Fotopoulos, V. 2019. *Priming and pretreatment of seeds and seedlings* (p. 20203172603). Singapore: Springer Singapore. <http://dx.doi.org/10.1007/978-981-13-8625-1>
- Hernández-Herrera, R. M., González-González, M. F., Velasco-Ramírez, A. P., Velasco-Ramírez, S. F., Santacruz-Ruvalcaba, F., & Zamora-Natera, J. F. 2023. Seaweed extract components are correlated with the seeds germination and growth of tomato seedlings. *Seeds*, 2(4), 436-448. <http://dx.doi.org/10.3390/seeds2040033>

- Hussain, S., Zheng, M., Khan, F., Khaliq, A., Fahad, S., Peng, S. 2015. Benefits of Rice Seed Priming are Offset Permanently by Prolonged Storage and The Storage Conditions. *Sci. Rep.*, 5(1). <https://doi.org/10.1038/srep08101>
- Ibrahim, E.A. 2016. Seed priming to alleviate salinity stress in germinating seeds. *J. Plant Physiol.*, 192, 38–46. <https://doi.org/10.1016/j.jplph.2015.12.011>
- Indriaty, A. S., Alimuddin, S., & Abdullah, A. 2022. Pengaruh Ekstrak Daun Kelor Sebagai Priming Organik Terhadap Viabilitas Benih Dan Vigor Bibit Jagung (*Zea mays L.*). *AGrotekMAS Jurnal Indonesia: Jurnal Ilmu Pertanian*, 3(1), 41-53. <https://doi.org/10.33096/agrotekmas.v3i1.200>
- Isvari, K., & Srimaryati, S. 2014. Pengaruh Giberelin dan Jenis Kemasan untuk Menekan Susut Cabai Kopay Selama Pengangkutan Jarak Jauh. *Indonesian Journal of Agricultural Postharvest Research*, 11(2), 89-100. <https://dx.doi.org/10.21082/jpasca.v11n2.2014.89-100>
- Itrotwar, P. D., Govindaraju, K., Tamilselvan, S., Kannan, M., Raja, K., & Subramanian, K. S. 2019. Seaweed-based biogenic ZnO nanoparticles for improving agro-morphological characteristics of rice (*Oryza sativa L.*). *Journal of plant growth regulation*, 39, 717-728. <https://doi.org/10.1007/s00344-019-10012-3>
- Jassal, R. K., & Singh, H. 2018. Effect of seed priming and its duration on seed germination and vigour of soybean. *Agricultural Research Journal*, 55(4), 745-748. <http://dx.doi.org/10.5958/2395-146X.2018.00135.7>
- Kader, I. H., & Gerung, G. S. 2020. Struktur morfologi jenis makro alga di Perairan Siko Kepulauan Gura Ici Kabupaten Halmahera Selatan Provinsi Maluku Utara. *Jurnal Ilmu Kelautan Kepulauan*, 3(2). <https://doi.org/10.33387/jikk.v3i2.2581>
- Kannaujia, R., Srivastava, C.M., Prasad, V., Singh, B.N., Pandey, V. 2019. *Phyllanthus Emblica* Fruit Extract Stabilized Biogenic Silver Nanoparticles as a Growth Promoter of Wheat Varieties by Reducing ROS Toxicity. *Plant Physiology and Biochemistry*, 142, 460–471. <https://doi.org/10.1016/j.plaphy.2019.08.008>
- Kasote, D. M., Lee, J. H. J., Jayaprakasha, G. K., Patil, B. S. 2019. Seed Priming with Iron Oxide Nanoparticles Modulate Antioxidant Potential and Defense-Linked Hormones in Watermelon Seedlings. *ACS Sustainable Chemistry & Engineering*, 7, 5142–5151. <https://pubs.acs.org/doi/abs/10.1021/acssuschemeng.8b06013>
- Keputusan Menteri Pertanian. 2009. *Pelepasan Cabai Keriting Kopay Sebagai Varietas Unggul*. Departemen Pertanian. 5 hal.

- Khalaki, A., M., Moameri, M., Asgari Lajayer, B., & Astatkie, T. 2021. Influence of nano-priming on seed germination and plant growth of forage and medicinal plants. *Plant growth regulation*, 93(1), 13-28. <https://doi.org/10.1007/s10725-020-00670-9>
- Khan, F. A., Narayan, S., Bhat, S. A., Ashraf, S., Fayaz, F., & Aamir, M. 2023. Physiological potential of seed germination and seedling vigour of okra and parsley as influenced by seed priming treatments. *SKUAST Journal of Research*, 25(1), 34-42. <http://dx.doi.org/10.5958/2349-297X.2023.00004.1>
- Lutts, S., Benincasa, P., Wojtyla, L., Kubala, S., Pace, R., Lechowska, K., ... & Garnczarska, M. 2016. Seed priming: new comprehensive approaches for an old empirical technique. *New challenges in seed biology-basic and translational research driving seed technology*, 46. <http://dx.doi.org/10.5772/64420>
- Lagiman, L., & Supriyanta, B. 2021. *Karakterisasi morfologi dan pemuliaan tanaman cabai*. LPPM UPN “Veteran” Yogyakarta.
- Lestari, I., Karno, K., & Sutarno, S. 2020. Uji viabilitas dan pertumbuhan benih kedelai (*Glycine max*) dengan perlakuan invigorasi menggunakan ekstrak bawang merah. *Journal of Agro Complex*, 4(2), 116-124. <https://doi.org/10.14710/joac.4.2.116-124>
- Lewu, L. D., Uru, R. R., Ambu, L., Hinda, I. D., Welik, N. N., Raga, N. A., & Mandaha, M. 2023. Pengaruh Konsentrasi Ekstrak Rumput Laut (*Sargassum polycystum*) Terhadap Viabilitas Benih Sorgum. In *Prosiding Seminar Nasional SATI*, 2(1), 122-127.
- Madusanka, H. K. S., Aruggoda, A. G. B., Chathurika, J. A. S., & Weerakoon, S. R. 2024. Evaluating the Impact of Seed Nano-Priming with Green-Synthesized Copper Oxide Nanoparticles Using *Mimosa pigra* Leaf Extract on the Germination and Seedling Growth of Tomato (*Solanum lycopersicum*). *American Journal of Bioscience and Bioinformatics*, 3(1), 42-55. <http://dx.doi.org/10.54536/ajbb.v3i1.3959>
- Mahakham, W., Theerakulpisut, P., Maensiri, S., Phumying, S., Sarmah, A.K. 2016. Environmentally Benign Synthesis of Phytochemicals-Capped Gold Nanoparticles as Nanoprimeing Agent for Promoting Maize Seed Germination. *Science of the Total Environment*, 573, 1089–1102. <https://doi.org/10.1016/j.scitotenv.2016.08.120>

- Mahakham, W., Sarmah, A.K., Maensiri, S., Theerakulpisut, P. 2017. Nanoprimering Technology for Enhancing Germination and Starch Metabolism of Aged Rice Seeds Using Phytosynthesized Silver Nanoparticles. *Sci. Rep.*, 7, 8263. [10.1038/s41598-017-08669-5](https://doi.org/10.1038/s41598-017-08669-5)
- Manteu, S. H., & Nurjanah, N. T. 2018. Karakteristik rumput laut cokelat (*Sargassum polycystum* dan *Padina minor*) dari perairan Pohuwato Provinsi Gorontalo. *Jurnal Pengolahan Hasil Perikanan Indonesia*, 21(3), 396-405. DOI: [10.17844/jphpi.v21i3.24709](https://doi.org/10.17844/jphpi.v21i3.24709)
- May, L. H., Milthorpe, E. J., & Milthorpe, F. L. 1962. Pre-sowing hardening of plants to drought: an appraisal of the contributions by PA Genkel. *Field Crop Abstract*, 15(2), 94-98.
- Murray, G.A. and P.O. Wilson Jr. 1987. Priming Seed for Improved Vigor. University of Idaho. *Bull. College of Agriculture*, 67, 55-70.
- Mawale, K. S., Nandini, B., & Giridhar, P. 2024. Copper and Silver Nanoparticle Seed Priming and Foliar Spray Modulate Plant Growth and Thrips Infestation in *Capsicum* spp. *ACS omega*, 9(3), 3430-3444. <https://pubs.acs.org/doi/10.1021/acsomega.3c06961?goto=supporting-info>
- Nasib, S. B., Suketi, K., & Widodo, W. D. 2016. Pengaruh Plant Growth Promoting Rhizobacteria Terhadap Bibit dan Pertumbuhan Awal Pepaya, *Buletin Agrohorti*, 4(1), 63-69. <https://doi.org/10.29244/agrob.v4i1.15002>
- Nile, S. H., Thiruvengadam, M., Wang, Y., Samynathan, R., Shariati, M. A., Rebezov, M., ... & Kai, G. 2022. Nano-priming as emerging seed priming technology for sustainable agriculture—recent developments and future perspectives. *Journal of nanobiotechnology*, 20(1), 254. <https://doi.org/10.1186/s12951-022-01423-8>
- Noflindawati, N., Budiyanti, T., & Fatria, D. 2017. Keragaman Viabilitas Benih 20 Genotipe Pepaya (*Carica papaya* L.). *Jurnal Agroteknologi*, 8(1), 23-28. <http://dx.doi.org/10.24014/ja.v7i2.3356>
- Noli, Z. A., Suwirman., Aisyah., & Aliyyanti, P. 2021. Effect of Liquid Seaweed Extracts as Biostimulant on Vegetative Growth Of Soybean. In *International Conference on Agricultural and Life Sciences*, 1-7. <http://dx.doi.org/10.1088/1755-1315/759/1/012029>
- Noli, Z. A., Aliyyanti, P., & Mansyurdin. 2022. Study the Effect of *Padina minor* Seaweed Crude Extract as a Biostimulant on Soybean. *Pakistan Journal of Biological Sciences*, 25(1), 23-28. <https://doi.org/10.3923/pjbs.2022.23.28>

- Noli, Z. A., Alamsjah, F., & Rahmayati, R. S. 2024. Pengaruh Lama Perendaman pada Biopriming Padi Anak Daro Menggunakan *Bacillus subtilis* dan *Trichoderma harzianum*. *Bioscientist: Jurnal Ilmiah Biologi*, 12(1), 722-732. <https://doi.org/10.33394/bioscientist.v12i1.10987>
- Noli, Z.A., Shayen, M. P., Maideliza T., Suwirmen. 2024. Effect of nanoparticle seaweed extracts (*Padina minor*) as biostimulant on growth and yield of soybean (*Glycine max*). *Intl J Agric Biol*, 32, 233-239. <http://dx.doi.org/10.17957/IJAB/15.2197>
- Ochoa-Chaparro, E. H., Ramírez-Estrada, C. A., Anchondo-Páez, J. C., Sánchez, E., Pérez-Álvarez, S., Castruita-Esparza, L. U., ... & Franco-Lagos, C. L. 2024. Nanopriming with Zinc–Molybdenum in Jalapeño Pepper on Imbibition, Germination, and Early Growth. *Agronomy*, 14(8). [10.20944/preprints202406.1830.v1](https://doi.org/10.20944/preprints202406.1830.v1)
- Ozbay, N., & Susluoglu, Z. 2016. Assessment of growth regulator prohexadione calcium as priming agent for germination enhancement of pepper at low temperature. *JAPS: Journal of Animal & Plant Sciences*, 26(6).
- Paparella, S., Araújo, S. S., Rossi, G., Wijayasinghe, M. A. L. A. K. A., Carbonera, D., & Balestrazzi, A. 2015. Seed priming: state of the art and new perspectives. *Plant cell reports*, 34, 1281-1293. <https://doi.org/10.1007/s00299-015-1784-y>
- Pawar, V. A., & Laware, S. L. 2018. Seed priming a critical review. *Int. J. Sci. Res. Biol. Sci*, 5(5), 94-101. <https://doi.org/10.26438/ijsrbs/v5i5.94101>
- Pereira, A. D. E. S., Oliveira, H. C., & Fraceto, L. F. 2019. Polymeric nanoparticles as an alternative for application of gibberellic acid in sustainable agriculture: a field study. *Scientific reports*, 9(1), 7135. <https://doi.org/10.1038/s41598-019-43494-y>
- Pereira, D. E. S., Oliveira, H. C., Fraceto, L. F., & Santaella, C. 2021. Nanotechnology potential in seed priming for sustainable agriculture. *Nanomaterials*, 11(2), 267. <https://doi.org/10.3390/nano11020267>
- Pongtuluran, A. K., & Rompas, M. 2022. *Deskripsi Jenis Makroalga Di Garis Pantai Bentenan Minahasa Tenggara*. Doctoral dissertation. Politeknik Negeri Manado.
- Radwan, A. M., Ahmed, E. A., Donia, A. M., Mustafa, A. E., & Balah, M. A. 2023. Priming of *Citrullus lanatus* var. *Colocynthoides* seeds in seaweed extract improved seed germination, plant growth and performance under salinity conditions. *Scientific Reports*, 13(1), 11884. <https://doi.org/10.1038/s41598-023-38711-8>

- Rahmadina, N. Z., Hasanuddin, H., & Mayani, N. 2024. Pengaruh Lama Perendaman dengan Berbagai Konsentrasi *Trichoderma harzianum* Terhadap Viabilitas dan Vigor Benih Cabai Kedaluwarsa (*Capsicum annum* L.). *Jurnal Floratek*, 19(1), 45-55. <https://doi.org/10.17969/floratek.v19i1.36268>
- Rai-Kalal, P., & Jajoo, A. 2021. Priming with zinc oxide nanoparticles improve germination and photosynthetic performance in wheat. *Plant Physiology and Biochemistry*, 160, 341-351. <https://doi.org/10.1016/j.plaphy.2021.01.032>
- Rhaman, M. S., Tania, S. S., Imran, S., Rauf, F., Kibria, M. G., Ye, W., ... & Murata, Y. 2022. Seed priming with nanoparticles: An emerging technique for improving plant growth, development, and abiotic stress tolerance. *Journal of Soil Science and Plant Nutrition*, 22(4), 4047-4062. <https://doi.org/10.1007/s42729-022-01007-3>
- Rimayani, S., Noli, Z. A., & Bakhtiar, A. 2022. Effect of seaweed extract from water, methanol, and ethanol extraction as biostimulant on growth and yield of upland rice (*Oryza sativa* L.) in Ultisol. *Int. J. Prog. Sci. Technol.*, 30, 449-455. <http://dx.doi.org/10.52155/ijpsat.v30.2.4031>
- Rolin, N., Zamzami, A., & Qadir, A. 2024. Pengaruh Ukuran Benih terhadap Mutu Kecambah Kacang Hijau (*Vigna radiata* L.) Varietas Vima 4 dan Vimil 1. *Buletin Agrohorti*, 12(1), 123-135. <http://dx.doi.org/10.32938/sc.v2i03.210>
- Rouhi, H. R., Surki, A. A., Farzad, S. Z., Reza, T. A., Aboutalebian, M. A. & Goundarz, A. 2011. Study of Different Priming Treatments on Germination Traits of Soybean Seed Lots. *Notulae Scientia Biologicae*, 3(1), 101-108. <https://doi.org/10.15835/nsb315462>
- Sarita, I. D. A. A. D., Subrata, I. M., Sumaryani, N. P., & Rai, I. G. A. 2021. identifikasi jenis rumput laut yang terdapat pada ekosistem alami perairan nusa pedida. *Emasains: Jurnal Edukasi Matematika dan Sains*, 10(1), 141-154. <https://doi.org/10.5281/zenodo.4692118>
- Sakinah, F., Lestari, S., & Yulianah, I. 2023. Respon Benih Cabai (*Capsicum annum* L.) Kadaluarsa Terhadap Lama Perendaman dan Macam ZPT Alami Pada Viabilitas, Vigor dan Pertumbuhan Bibit. *Jurnal Produksi Tanaman*, 11(3), 199-208. <https://doi.org/10.21776/ub.protan.2023.011.03.07>
- Shayen, M. P., Noli, Z. A., Maideliza, T., & Suwirmen, S. 2023. Pengaruh Aplikasi Nanobiostimulan Rumput Laut (*Padina minor* Yamada) terhadap Kadar Klorofil Kedelai (*Glycine max* (L.) Merr.). *Bioscientist: Jurnal Ilmiah Biologi*, 11(2), 1176-1185. <https://doi.org/10.33394/bioscientist.v11i2.9063>

- Sundaria, N., Singh, M., Upreti, P., Chauhan, R. P., Jaiswal, J. P., & Kumar, A. 2018. Seed priming with iron oxide nanoparticles triggers iron acquisition and biofortification in wheat (*Triticum aestivum* L.) grains. *Journal of Plant Growth Regulation*, 38, 122-131. <https://doi.org/10.1007/s00344-018-9818-7>
- Supardy., Adelina, E., & Made, U. 2016. Pengaruh lama perendaman dan konsentrasi giberelin (GA3) terhadap viabilitas benih kakao (*Theobroma cacao* L.). eJ. *Agrotekbis* 2 (3): 425, 431.
- Suparto, H., Sofyan, A., & Irfan, M. 2023. Invigoration Larutan Bawang Merah Terhadap Viabilitas dan Vigor Tiga Benih Padi Varietas Lokal. *Jurnal Penelitian UPR*, 3(2), 93-98. <https://doi.org/10.5285/jptupr.v3i2.12469>
- Suwirmen, S., Noli, Z. A., & Rukmini, T. 2022. Aplikasi Ekstrak *Padina minor* dan *Centella asiatica* sebagai Biostimulan terhadap Pertumbuhan Tanaman Kedelai (*Glycine max* (L.) Merr.). *Bioscientist: Jurnal Ilmiah Biologi*, 10(1), 166-172. <https://doi.org/10.33394/bioscientist.v10i1.4654>
- Syaiful, S. A., Haring, F., Syawlia, R. R., Padjung, R., Mantja, K., & Farid, M. 2021. Improvement on the quality of chilli (*Capsicum annuum* L.) seedlings through seed immersion in Supergib solution. In *IOP Conference Series: Earth and Environmental Science*, 807(4). <http://dx.doi.org/10.1088/1755-1315/807/4/042051>
- Tanjung, S. A., & Lahay, R. R. 2017. Pengaruh Konsentrasi Dan Lama Perendaman Asam Sulfat Terhadap Perkecambahan Biji Aren (*Arenga pinnata* Merr.). *Jurnal Online Agroekoteknologi*, 5(2), 396-408. <https://doi.org/10.32734/ja.v5i2.2572>
- Tavares, A. R., dos Santos, P. L. F., Zabotto, A. R., do Nascimento, M. V. L., Jordão, H. W. C., Boas, R. L. V., & Broetto, F. 2020. Seaweed extract to enhance marigold seed germination and seedling establishment. *SN Applied Sciences*, 2(11), 1792. <https://doi.org/10.1007/s42452-020-03603-3>
- Tefa, A. 2017. Uji viabilitas dan vigor benih padi (*Oryza sativa* L.) selama penyimpanan pada tingkat kadar air yang berbeda. *Savana Cendana*, 2(03), 48-50. <http://dx.doi.org/10.32938/sc.v2i03.210>
- Thriunavukkarasu, R., Joseph, J., & Aruni, W. 2020. Effect of seaweed on seed germination and biochemical constituents of *Capsicum annuum*. *Biocatalysis and agricultural biotechnology*, 29, 101761. <https://doi.org/10.1016/j.biab.2020.101761>

Waqas, M., Korres, N. E., Khan, M. D., Nizami, A. S., Deeba, F., Ali, I., & Hussain, H. 2019. Advances in the concept and methods of seed priming. Priming and pretreatment of seeds and seedlings: Implication in plant stress tolerance and enhancing productivity in crop plants, 11-41. https://doi.org/10.1007/978-981-13-8625-1_2

Wlodarczyk, K., & Smolinska, B. 2022. The effect of nano-zno on seeds germination parameters of different tomatoes (*Solanum lycopersicum* L.) cultivars. *Molecules*, 27(15), 4963. <https://doi.org/10.3390/molecules27154963>

Wulandari, R., & Setiono, S. 2022. Pengaruh Jenis Pengemas Dan Lama Penyimpanan Terhadap Viabilitas Benih Kedelai (*Glycine max* (L.) Merr) Varietas Anjasmoro. *Jurnal Sains Agro*, 7(2), 184-196. <https://doi.org/10.36355/jsa.v7i2.912>

