

### DAFTAR PUSTAKA

- Ahmadjian, V. 1967. *The Lichen Symbiosis*. Blaisdell Publishing Company. United States of America.
- Allsopp, D., Seal, K.J. and Gaylarde, C.C., 2004. *Introduction to biodeterioration*. Cambridge University Press.
- Andrea, E.S., Zuhri, R. and Marlina, L., 2018. Identifikasi Jenis Lichen di Kawasan Objek Wisata Teluk Wang Sakti. *BIOCOLONY*, 1(2), pp.7-15.
- Anwari, W., Sutjihati, S. and Munarti, M., 2021. Kenakeragaman Lichen di Pusat Pendidikan Konservasi Alam Bodogol, Taman Nasional Gunung Gede Pangrango. *Jurnal Penelitian Ekosistem Dipterokarpa*, 7(2), pp.89-100.
- Armstrong, R. A., & Bradwell, T. (2011). Growth of foliose lichens: a review. *Symbiosis*, 53, 1-16.
- Armstrong, R., & Bradwell, T. (2010). Growth of crustose lichens: a review. *Geografiska Annaler: Series A, Physical Geography*, 92(1), 3-17.
- Asplund, J. and Wardle, D.A., 2013. The impact of secondary compounds and functional characteristics on lichen palatability and decomposition. *Journal of Ecology*, 101(3), pp.689-700.
- Asplund, J., & Wardle, D. A. (2017). How lichens impact on terrestrial community and ecosystem properties. *Biological Reviews*, 92(3), 1720-1738.
- Austrheim, G. and Eriksson, O., 2001. Plant species diversity and grazing in the Scandinavian mountains-patterns and processes at different spatial scales. *Ecography*, 24(6), pp.683-695.
- Belnap, J. (2006). The potential roles of biological soil crusts in dryland hydrologic cycles. *Hydrological Processes: An International Journal*, 20(15), 3159-3178.
- Boustie, J., Tomasi, S. and Grube, M., 2011. Bioactive lichen metabolites: alpine habitats as an untapped source. *Phytochemistry Reviews*, 10, pp.287-307.
- Chesson, P., & Huntly, N. (1997). The roles of harsh and fluctuating conditions in the dynamics of ecological communities. *The American Naturalist*, 150(5), 519-553.

- Culberson, W.L., 1969. The use of chemistry in the systematics of the lichens. *Taxon*, 18(2), pp.152-166.
- Dasuka, Y. P., Sasmito, B., & Haniah, H. (2016). Analisis sebaran jenis vegetasi hutan alami menggunakan sistem penginderaan jauh (Studi Kasus: Jalur Pendakian Wekas dan Selo). *Jurnal Geodesi Undip*, 5(2), 1-8.
- Divakar, P. K., Crespo, A., Blanco, O., & Lumbsch, H. T. (2006). Phylogenetic significance of morphological characters in the tropical Hypotrachyna clade of parmelioid lichens (Parmeliaceae, Ascomycota). *Molecular Phylogenetics and Evolution*, 40(2), 448-458.
- Dobson, 1992. Lichen. The Richmond Publishing. England. p. 1-370
- Dumbois, A. & H. Ellenberg. 1974. Aims & Method of Vegetation of Ecology. John Wiley & Sons. New York.
- Edwards, H.G., Russell, N.C., Seaward, M.R.D. and Slarke, D., 1995. Lichen biodeterioration under different microclimates: an FT Raman spectroscopic study. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 51(12), pp.2091-2100.
- Farkas, E., Varga, N., Veres, K., Matus, G., Sinigla, M., & Lőkös, L. (2022). Distribution types of lichens in Hungary that indicate changing environmental conditions. *Journal of Fungi*, 8(6), 600.
- Gandjar, I., 2006. *Mikologi dasar dan terapan*. Yayasan Obor Indonesia.
- Giordani, P., Brunialti, G., Bacaro, G. and Nascimbene, J., 2012. Functional traits of epiphytic lichens as potential indicators of environmental conditions in forest ecosystems. *Ecological indicators*, 18, pp.413-420.
- Green, T.A. and Proctor, M.C., 2016. Physiology of photosynthetic organisms within biological soil crusts: their adaptation, flexibility, and plasticity. *Biological soil crusts: an organizing principle in drylands*, pp.347-381.
- Grube, M. (2010). Die hard: lichens. *Symbioses and stress: Joint ventures in biology*, 509-523.
- Hamada, N., 1989. The effect of various culture conditions on depside production by an isolated lichen mycobiont. *Bryologist*, pp.310-313.

- Handayani, K.P. and Latiffana, K., 2018. Distribusi spasial lutung surili (*Presbytis comata*) di Taman Nasional Gunung Merbabu. *Riset Sebagai Fondasi Konservasi dan Pemanfaatan Tumbuhan dan Satwa Liar*, p.118.
- Hano'e, E.M. and Pardosi, L., 2022. Keanekaragaman Lumut Kerak (Lichenes) di Area Kaki Gunung Mutis. *Jurnal Pro-Life*, 9(3), pp.515-532.
- Hauck, M., de Bruyn, U. and Leuschner, C., 2013. Dramatic diversity losses in epiphytic lichens in temperate broad-leaved forests during the last 150 years. *Biological conservation*, 157, pp.136-145.
- Honegger, R. (1993). Developmental biology of lichens. *New Phytologist*, 125(4), 659-677.
- Huneck, S & Isao Y. 1996. Identification of Lichen Substances. Springer-Verlag. Berlin.
- Hutasuhut, M.A., Febriani, H. and Devi, S., 2021. Identifikasi dan Karakteristik Habitat Jenis Lumut Kerak di Taman Wisata Alam Sicikeh-Cikeh Kabupaten Dairi Sumatera Utara. *Jurnal Biolokus: Jurnal Penelitian Pendidikan Biologi Dan Biologi Vol, 4*, p.1.
- Hyvärinen, M., Hårdling, R. and Tuomi, J., 2002. Cyanobacterial lichen symbiosis: the fungal partner as an optimal harvester. *Oikos*, 98(3), pp.498-504.
- John, E. and Dale, M.R.T., 1990. Environmental correlates of species distributions in a saxicolous lichen community. *Journal of Vegetation Science*, 1(3), pp.385-392.
- Kappen, L., Schroeter, B., Scheidegger, C., Sommerkorn, M. and Hestmark, G., 1996. Cold resistance and metabolic activity of lichens below 0 C. *Advances in Space Research*, 18(12), pp.119-128.
- Kovacs, M. 1992. Indicators in Environmental Protection. Ellis Horwood. New York. Massachusetts. Toronto-London
- Longton, R. E. (1988). *Biology of polar bryophytes and lichens*. CUP Archive.
- Lutzoni, F. and Miadlikowska, J., 2009. Lichens. *Current Biology*, 19(13), pp.R502-R503.
- Magurran, A.E. (2004). Ecological diversity and its measurement. New Jersey:

- Mattsson, J.E. and Lumbsch, H.T., 1989. The use of the species pair concept in lichen taxonomy. *Taxon*, pp.238-241.
- Miadlikowska, J., Richardson, D., Magain, N., Ball, B., Anderson, F., Cameron, R., Lendemer, J., Truong, C. and Lutzoni, F., 2014. Phylogenetic placement, species delimitation, and cyanobiont identity of endangered aquatic *Peltigera* species (lichen-forming Ascomycota, Lecanoromycetes). *American Journal of Botany*, 101(7), pp.1141-1156.
- Muvidha, A., 2020. Lichen di Jawa Timur. *Tulung Agung: Akademia Pustaka*.
- Nguyen, K.H., Chollet-Krugler, M., Gouault, N. and Tomasi, S., 2013. UV-protectant metabolites from lichens and their symbiotic partners. *Natural product reports*, 30(12), pp.1490-1508.
- Pasaribu, N., Atni, O. K., & Siregar, J. P. (2023). Diversity and species composition of lichens across altitudinal range in the Batang Toru Forest, North Sumatra, Indonesia. *Biodiversitas Journal of Biological Diversity*, 24(4).
- Petchey, O. L., & Gaston, K. J. (2006). Functional diversity: back to basics and looking forward. *Ecology letters*, 9(6), 741-758.
- Pharo, E.J., Beattie, A.J. and Binns, D., 1999. Vascular plant diversity as a surrogate for bryophyte and lichen diversity. *Conservation Biology*, 13(2), pp.282-292.
- Pratama, A. and Trianto, M., 2020. Diversity of Lichen in Mangrove Forest of Tomoli Village Parigi Moutong Regency. *BIO-EDU: Jurnal Pendidikan Biologi*, 5(3), pp.140-150.
- Pratama, A., & Trianto, M. (2020). Keanekaragaman Lichen di Hutan Mangrove Desa Tomoli Kabupaten Parigi Moutong. *Jurnal Bio-Edu*, 5(3), 140-150. Princeton University Press.
- Printzen, C., & May, P. (2002). *Lecanora ramulicola* (Lecanoraceae, Lecanorales), an overlooked lichen species from the *Lecanora symmicta* group. *The Bryologist*, 105(1), 63-69.
- Raju, N. J. (2022). Arsenic in the geo-environment: A review of sources, geochemical processes, toxicity and removal technologies. *Environmental research*, 203, 111782.

- Roth, R., Wagner, R., & Goodenough, U. (2021). Lichen 3. Outer layers. *Algal Research*, 56, 102332.
- Roziaty, E., 2016. Kajian lichen: morfologi, habitat dan bioindikator kualitas udara ambien akibat polusi kendaraan bermotor. *Bioeksperimen: Jurnal Penelitian Biologi*, 2(1), pp.54-66.
- Roziaty, E., 2016. Lichen: Karakteristik Anatomis Dan Reproduksi Vegetatifnya. *Jurnal Pena Sains Vol*, 3(1).
- Sanders, W. B. (2014). Complete life cycle of the lichen fungus *Calopadia puiggarii* (Pilocarpaceae, Ascomycetes) documented in situ: propagule dispersal, establishment of symbiosis, thallus development, and formation of sexual and asexual reproductive structures. *American Journal of Botany*, 101(11), 1836-1848.
- Sanders, W.B., 2001. Lichens: The Interface between Mycology and Plant Morphology: Whereas most other fungi live as an absorptive mycelium inside their food substrate, the lichen fungi construct a plant-like body within which photosynthetic algal symbionts are cultivated. *Bioscience*, 51(12), pp.1025-1035.
- Sarosa, S., 2021. *Analisis Data Penelitian Kualitatif*. Pt Kanisius. Yogyakarta p. 1-180.
- Seminara, A., Fritz, J., Brenner, M.P. and Pringle, A., 2018. A universal growth limit for circular lichens. *Journal of the Royal Society Interface*, 15(143), p.20180063.
- Shukla, V., Upreti, D. K., & Bajpai, R. (2014). *Lichens to biomonitor the environment* (pp. 97-170). Springer India.
- Sipahutar, A. H., Marbun, P., & Fauzi, F. (2014). Kajian C-Organik, N dan P Humitropepts pada ketinggian tempat yang berbeda di Kecamatan Lintong Nihuta. *Jurnal Agroekoteknologi Universitas Sumatera Utara*, 2(4), 100824.
- Solhaug, K.A., Gauslaa, Y., Nybakken, L. and Bilger, W., 2003. UV-induction of sun-screening pigments in lichens. *New Phytologist*, 158(1), pp.91-100.

- Stocker-Wörgötter, E., 2008. Metabolic diversity of lichen-forming ascomycetous fungi: culturing, polyketide and shikimate metabolite production, and PKS genes. *Natural product reports*, 25(1), pp.188-200.
- Susilawati, P.R., 2017. Fruticose dan Foliose Lichen di Bukit Bibi, Taman Nasional Gunung Merapi. *Jurnal Penelitian*, 21(1).
- Swenson, N. G. (2011). The role of evolutionary processes in producing biodiversity patterns, and the interrelationships between taxonomic, functional and phylogenetic biodiversity. *American Journal of Botany*, 98(3), 472-480.
- Thomson, J. W. (1955). Lichens of Arctic America. II. Additions to records of lichen distribution in the Canadian Eastern Arctic. *The Bryologist*, 58(3), 246-259.
- TN Gunung Merbabu. 2017. Topografi Taman Nasional Gunung Merbabu. <https://tngunungmerbabu.org/topografi/>. Diakses tanggal 1 Oktober 2022.
- Tufan-Çetin, Ö.Z.G.E., 2019. A Comparison Study on Lichen of Three National Parks From Turkey. In *2nd International Eurasian Mycology Congress (EMC'19)* (p. 29).
- Turahmi, M., Harmida, H. and Aminasih, N., 2022. Keragaman Lichen pada Batang Palem Ekor Tupai (*Wodyetia bifurcata* L.) Berdasarkan Tingkat Kepadatan Lalu Lintas yang Berbeda. In *Prosiding SNPBS (Seminar Nasional Pendidikan Biologi dan Saintek)* (pp. 362-371).
- Webber, M.M. and Webber, P.J., 1970. Ultrastructure of lichen haustoria: symbiosis in *Parmelia sulcata*. *Canadian Journal of Botany*, 48(9), pp.1521-1524.
- Wiranegara, A., Hernando, A., Maghfira, R., Farahyah, J. D., & Nur, M. (2018). Dampak penggunaan lahan terhadap keanekaragaman arthropoda pada daerah sekitar Situ Cisanti. *Jurnal Penelitian Kecil Proyek Ekologi*, 1-11.
- Zedda, L. and Rambold, G., 2015. The diversity of lichenised fungi: Ecosystem functions and ecosystem services. *Recent advances in Lichenology*, pp.121-145.

Zhao, X., Leavitt, S.D., Zhao, Z.T., Zhang, L.L., Arup, U., Grube, M., Pérez-Ortega, S., Printzen, C., Śliwa, L., Kraichak, E. and Divakar, P.K., 2016. Towards a revised generic classification of lecanoroid lichens (Lecanoraceae, Ascomycota) based on molecular, morphological and chemical evidence. *Fungal Diversity*, 78(1), pp.293-304.