# BIOCOURIER

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SEAMEO BIOTROP and UNIVERSITAS SAMUDRA Strengthen Collaboration in Tropical Biotechnology Research and Development

Discussions covered various potential areas of cooperation, including knowledge exchange, joint research, and training programs for students and staff.

#### PT Sidomuncul Visits SEAMEO BIOTROP to Explore Collaboration on Agarwood Development

PT Sido Muncul is considering partnership with SEAMEO BIOTROP for upstream activities, including seed selection, cultivation, and utilization of agarwood trees.



#### **BIOCourier**

**SEAMEO BIOTROP Newsletter** 

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#### Director's Message

Dear Valued Readers.

Inthisthird quarter of 2024, SEAMEO BIOTROP has continued to make impactful strides in research, collaboration, and innovation in tropical biology. One of our key highlights this quarter has been the monument signing of the Agro-Eco-Edu Tourism initiative, which marks a step toward promoting sustainable agricultural practices and fostering greater awareness of tropical biodiversity among diverse audiences. This initiative, coupled with our in-house biotechnology training, reflects SEAMEO BIOTROP's commitment to supporting food security and environmental stewardship through advanced biotechnology and organic solutions.

Furthermore, our collaborative efforts with institutions like Universitas Samudra Aceh and Universitas Hasanuddin demonstrate the partnerships in strengthening research capabilities. These collaborations aimed to develop innovative solutions to biological and environmental issues. By fostering an inclusive learning environment, we are also equipping future generations to tackle these challenges with the knowledge and tools they need.

As we advance, SEAMEO BIOTROP remains committed to enhancing its governance model to support flexible, sustainable operations and to meet evolving demands. I would like to thank our dedicated team and partners for their continued contributions, which make our shared vision for a resilient and biodiverse tropical region a reality.

Warm regards, Dr Zulhamsyah Imran Director, SEAMEO BIOTROP

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# Popular Article



**MORE INFORMATION** 



#### SEAMEO BIOTROP DEVELOPS APPROPRIATE TECHNOLOGY FOR ORGANIC PESTICIDE LIQCORIS TO CONTROL PESTS AND PLANT DISEASES

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#### PROBLEM FACED

As many people know, organic pesticides medicinal ingredients made natural ingredients to control pests and plant diseases. The ingredients for making organic pesticides are taken from plants, animals, and microorganisms. Being made from natural ingredients, this pesticide is more environmentally friendly and safer for human health. Organic pesticides are used in organic farming to control pests, plant diseases, and weeds without using synthetic chemicals, which can have a negative impact on the environment and health. Organic pesticides are generally considered more environmentally friendly because they break down quickly and have little or no harmful residue.

If we want to maintain biodiversity, then sustainable management is an important thing to do. This management can be achieved by implementing organic farming, one of which is using organic pesticides to control pests and plant diseases. Pests are organisms that disturb plants. Pest organisms are very diverse, including insects, birds, and mammals. The insect group has the most significant number of species among the various types of organisms. Pesticides made from synthetic chemicals are used to eradicate insect pests and reduce the number of insects causing disturbance to plants. Chemical pesticides have shown a real contribution to agricultural productivity, however, over time these chemical pesticides have been proven to cause detrimental consequences for the sustainability of agricultural ecosystems (Tuhuteru et al., 2019)

Using chemical pesticides over a long period of time and with incorrect doses will result in the wiping out of the natural enemy of the pests. As a result, pests will be resistant causing the increase of insects population. This means that the biological control factor does not function optimally. Therefore, chemical pesticides should be replaced with organic pesticides. Organic pesticides are pesticides derived from plants containing bioactive compounds, such as alkaloids, terpenoids, phenolics, and other compounds that can inhibit or kill the disease-causing pests (Khoirunnisa et al., 2022).

Plant disease is a physiological process that causes plants to become abnormal due to attacks by fungi, bacteria, or viruses on the vegetative organs in the form of roots, stems, and leaves or the generative organs of the plant (Rosadi et al., 2022). Plant diseases can cause a decrease in food and horticultural crop production. This is in line with the statement of Dr Ali Nurmansyah, IPB University lecturer from the Department of Plant Protection, Faculty of Agriculture, who said that pest attacks and plant diseases, directly and indirectly, affect plants, including reducing crop yields. According to the 2021 Food and Agriculture Organization (FAO) report, plant disease and pest attacks reduced global crop production by up to 40%. This is also experienced by farmers, agricultural companies, agribusiness entrepreneurs, or the government, as stated by Siahaan and Muklasin (2023) that when plants are attacked by organisms with an attack intensity of 40%, a harvest yield of 6 tons is obtained. If the pest attack is controlled only at an attack intensity of 5%, the harvest can reach 10 tons. A pest attack with an attack intensity of 40% means a yield loss of 4 tons. Therefore, farmers often use pesticides to overcome this pest problem. Unfortunately, the pesticides that are widely used by farmers are the non-organic pesticides or synthetic chemicals. According to Sinambela (2024). agricultural management based on high energy input such as chemical pesticides can cause agricultural environmental pollution. Therefore, in controlling pests, it is best to use organic pesticides. Organic pesticides are pesticides having active ingredients for pest control made from plant parts, such as roots, leaves, stems, or fruits (Wardana et al., 2021).

#### THE ROLE OF SEAMED BIOTROP

Among efforts of SEAMEO BIOTROP to deal with the arising problems is creating organic pesticides called Liqcoris. The manufacture of Liqcoris organic pesticide is in accordance with the three main programs of SEAMEO BIOTROP, i.e., (1) ecosystem restoration and conservation; (2) sustainable use of biodiversity, bioenergy, and biotechnology to support food security and resilience to climate change and (3) ecosystem resilience in the face of global climate change.

A study of appropriate technology in making organic pesticides has been carried out at SEAMEO BIOTROP, which is made from coconut shell waste and coconut husks. This is an innovation that uses coconut waste to produce natural pesticides. These two ingredients have great potential because they contain active compounds that can control pests. Results of research conducted by Rosita et al. (2022) from the Environmental Technology and Security Section of SEAMEO BIOTROP reported that the phenolic compounds and carbamic acid contained in the organic pesticide Liqcoris 15% can control mosaic virus disease and aphids causing disease in chili plant. Phenol functions as an antiseptic and antimicrobial agent, while carbamic acid derivatives are effective as insecticides. Phenol and its derivatives can be used in pesticide formulations due to their ability to control pests and pathogens. Phenol is also often used in antiseptic and disinfectant products because of its properties, which can kill bacteria and microorganisms. Meanwhile, several carbamate compounds are used in drug formulations because of their biological activity. Carbamic acid derivatives, such as carbamates, are used to manufacture insecticides. Carbamate insecticides work by inhibiting the enzyme cholinesterase, essential in the insect's nervous system.

Then, what about the application of organic pesticide? Spraying Liqcoris organic pesticide with a concentration of 15% to plant leaves effectively inhibited leaf spot disease on red ginger plant caused by pathogenic fungus Nigrospora sphaerica. Maulidiyah et al. (2023) reported a reduction in leaf spot disease intensity after implementing Liqcoris. initial disease intensity of 14.84% decreased to 12.94% with a reduction percentage of 12.80% after 3-week application of Liqcoris. Understanding the use of organic pesticides and the impact on biodiversity, agricultural products, and environment is critical to learn from the beginning for sustainability and environmental health.



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# What's on SEAMEO BIOTROP



**MORE INFORMATION** 

## SEAMEO BIOTROP INAUGURATES AGRO-ECO-EDU TOURISM INITIATIVE AMIDST HIGH-LEVEL COORDINATION MEETING

BOGOR, 5 September 2024 – SEAMEO BIOTROP hosted the signing of the Agro-Eco-Edu Tourism plaque by the Secretary of Directorate General for Higher Education, Prof Tjitjik Sri Tjahjandarie. The signing took place at SEAMEO BIOTROP's main campus in Bogor, during a coordination meeting focusing on optimizing partnership management and financial governance. Representatives from three SEAMEO Centers—BIOTROP, SEAMOLEC, and RECFON—participated in this high-level discussion alongside officials from the Directorate General for Higher Education.

Dr Zulhamsyah Imran, Director of SEAMEO BIOTROP, emphasizing the need for a more flexible governance structure. He stated, "The dual status of SEAMEO Centers, being governed both by SEAMEO and the Indonesian government, limits our flexibility, particularly in generating income outside the national budget. Solutions must be found to address this challenge."

Funding mechanisms for the centers were also a crucial issue. It was noted that PTNBH (State-Owned Legal Entity Universities) offers flexibility, including opportunities for investment-based partnerships. Dr Zulhamsyah highlighted that while PTNBH institutions were open to housing SEAMEO Centers, they required guaranteed funding.

A proposed solution was the separation of activities funded by the state budget (DIPA) from non-DIPA activities, allowing SEAMEO Centers to pursue external income without conflicting with public finance regulations. Dr Zulhamsyah added, "BIOTROP has faced challenges in maintaining laboratory

performance due to funding limitations, and this separation could help."

Another critical topic was the need to streamline partnerships, especially those with international institutions. Several directors expressed their takes on the partnership and collaboration policies. Wahyudi, Director of SEAMOLEC, noted, "SEAMOLEC has been able to serve various education levels, but we need to expand the collaborations to the regional level with more flexibility, especially when we aim to collaborate with partnering universities."

The meeting was concluded with the proposal that SEAMEO Centers are allowed to have more autonomy in partnership agreements. This includes the autonomy to sign Memoranda of Agreement (MoA) with foreign partners, pending approval from relevant Indonesian authorities.

The participants agreed on the need for further discussions on human resources, particularly the recruitment of researchers. Dr Zulhamsyah Imran expressed his concerns by stating, "The number of researchers and human resources at SEAMEO Centers is crucial for the Centers' development."

Looking ahead, SEAMEO BIOTROP will continue to refine its operational model to enhance its financial sustainability and international collaborations, while remaining aligned with the mandates of both SEAMEO and the Indonesian government.

This signing ceremony marked a significant milestone for SEAMEO BIOTROP, reinforcing its commitment to fostering agro-ecoeducation through innovative and sustainable approaches.(hcn)





#### SEAMEO BIOTROP HOSTS IN-HOUSE BIOTECHNOLOGY EQUIPMENT UTILIZATION TRAINING

SEAMEO BIOTROP organized an In-House Training focused on the operation, maintenance, and troubleshooting of biotechnology equipment on Thursday-Friday, 8 - 9 August 2024, in the Jati Room at SEAMEO BIOTROP. The event was attended by SEAMEO BIOTROP Director Dr Zulhamsyah Imran, laboratory staff, and other staff under the Human Centered Innovation Department, and Science Innovation Technology Department.

The primary goal of this training was to enhance participants' capacity in biotechnology, particularly in seed production through tissue culture and the use of biotechnology equipment. The training aimed to support food security by promoting the application of biotechnology in agriculture and increasing awareness and promotion of safe biotechnology products.

The In-House Training covered an introduction to various biotechnology tools, including descriptions of the equipment, their main components, and their functions in the laboratory. Participants learned how to use, adjust, and calibrate biotechnology tools to ensure accurate results. The training also included routine maintenance, such as cleaning and upkeep, as well as regular checks to prevent serious issues. Additionally, participants were taught to identify and fix common problems with step-by-step guidance. Case studies and simulations provided hands-on experience in dealing with practical issues that might arise.

The event was opened with remarks from Dr Zulhamsyah Imran, Director of SEAMEO BIOTROP. In his speech, he emphasized the importance of biotechnology in supporting food security through innovations like the production of superior seeds and the promotion of biotechnology product safety. He stated, "Biotechnology is one of the main programs we emphasize at SEAMEO BIOTROP to support food security. Through innovations, such as agricultural seed production and biotechnology safety promotion, we are committed to strengthening food security. We currently rely on biotechnology, including tissue culture, to produce superior seeds. We also support campaigns on the safety of biotechnology products for consumers."



Dr Zulhamsyah expressed his hope that the In-House Training (IHT) in Biotechnology would run smoothly and provide significant benefits in developing capacity and knowledge in the field of biotechnology. (ydl)

#### SEAMEO BIOTROP PARTICIPATES AT SEAMEO INTER-CENTRE COLLABORATION MEETING (ICCM) 2024

SEAMEO BIOTROP participated in the Inter-Centre Collaboration Meeting (ICCM) held in Yogyakarta on 11–12 July 2024 at Gamma Room of BBGP-DIY. The event was enthusiastically attended by SEAQIM, SEAQIL, SEAQIS, SEAMEO CECCEP, and SEAMEO RECFON with a full spirit of collaboration.

In the opening ceremony, Dr Sumardyono, Director of SEAMEO QITEP in Mathematics (SEAQIM), emphasized the importance of enhancing inter-centre collaboration to achieve common goals. The first day of ICCM featured presentations of program achievements from each center and discussions on potential collaborations, including plans to hold an international conference in Yogyakarta and cooperation with the ASEAN China Centre (ACC).

The second day began with a follow-up discussion on public relations for SEAMEO Centres in Indonesia, attended by Siwi Lungit from TVRI Yogyakarta. She highlighted the importance of open collaboration with all SEAMEO Centres. The in-depth discussion on public relations collaboration continued with the initiation of cooperation with SEA-TODAY, strengthening networks between SEAMEO Centres and external parties.

In addition to discussions and presentations, ICCM 2024 was enlivened by inter-centre sports competitions, including badminton, futsal, and table tennis. SEAMEO BIOTROP

showcased outstanding performance in the sports competitions. Their futsal team won second place, while the women's doubles badminton team secured third place. These achievements reflected not only academic and research excellence capabilities, but also high spirits of sportsmanship and camaraderie.

Representatives of SEAMEO BIOTROP expressed their pride in these achievements and committed to further strengthening collaboration with other centers. "This achievement is the result of the hard work of the team and the support of all SEAMEO BIOTROP members. We will continue to strive to contribute more in every future collaboration opportunity," said a member of the futsal team.

As ICCM 2024 concluded, SEAMEO BIOTROP hoped to carry this spirit of collaboration and achievements into all upcoming programs and activities, aiming to achieve shared goals in tropical biology education and research in ASEAN. (dy)





# SEAQIS CELEBRATES 15<sup>th</sup> anniversary with climate change exhibition in Jakarta: Seamed Biotrop Participates in Mitigation and Adaptation efforts

As ICCM 2024 concluded, SEAMEO BIOTROP hoped to carry this spirit of collaboration and achievements into all upcoming programs and activities, aiming to achieve shared goals in tropical biology education and research in ASEAN.

This event aimed to provide clear and accurate information about climate change to participants and policymakers, encouraging active participation in climate change mitigation and adaptation efforts.

The event began with a welcome address and report by the Acting Director of SEAQIS, Mr Zuhe Safitra. The exhibition was officially opened with a ribbon-cutting ceremony by the Secretary of the Directorate General of Teachers and Education Personnel, Mr Temu Ismail, S.Pd., M.Si., accompanied by VIP guests and SEAQIS Board of Directors members.

During the seminar and Q&A session, which focused on the implementation of climate change education in the learning process, Mr Ryco Farysca Adi, S.Si., served as the keynote speaker, replacing Dr Perdinan, who was unavailable. The panel talk show also featured four teachers from International-Based Schools (SBI) who shared their experiences.

SEAMEO BIOTROP participated in this event by exhibiting climate change mitigation and adaptation efforts. Ms Sri Widayanti, MSi, the Acting Deputy Director for Administration of SEAMEO BIOTROP, attended the event to support and celebrate SEAQIS 15th anniversary. The presence of SEAMEO BIOTROP not only showed support, but also provided an opportunity to share information and programs related to climate change that have been implemented.

This event is expected to motivate concrete actions in climate change mitigation and adaptation across all levels of society. SEAMEO BIOTROP is proud to be part of this significant initiative and is committed to continuously supporting educational and environmental efforts in the future.(dy)











# PT SIDO MUNCUL VISITS SEAMEO BIOTROP TO EXPLORE COLLABORATION ON AGARWOOD DEVELOPMENT

On 5 August 2024, a delegation of four representatives from PT Sido Muncul visited SEAMEO BIOTROP to explore potential collaboration on the conservation and development of agarwood trees. These trees are located in the industrial area of PT Sido Muncul and are considered for being used as raw materials of essential oils in various products of the company.

Mr Rizky, representing PT Sido Muncul essential oil business unit, discussed the company's efforts to work with various institutions, such as the Center for Research and Development of Agricultural Biotechnology and Genetic Resources (BB Biogen) and the Indonesian Essential Oil Council. The company has been implementing tissue culture techniques and collaborating with various partners to ensure consistent quality of raw materials, such as turmeric and cardamom.

Currently, around 40 hectares of the factory area are planted with agarwood trees, but the potential of these trees has not yet been fully optimized. The company is considering partnerships for upstream activities, including seed selection, cultivation, and utilization of agarwood trees. Downstream products, such as essential oils, are also being developed, with a focus on community development and positive impacts on society.

The visit included a presentation by Dr Supriyanto titled "Some Potential Sources of Essential Oil Plants in Indonesia," highlighting various essential oil plants in Indonesia, particularly those from Kalimantan, West Nusa Tenggara (NTB), and East Nusa Tenggara (NTT), which have yet to be fully mapped. The visit concluded with a tour of SEAMEO BIOTROP's Advanced Essential Oil Extraction Technology (AEET) area and an in-depth discussion on agarwood bio-induction techniques and the utilization of its derivatives.(hcn)







# SEAMEO BIOTROP AND UNIVERSITAS SAMUDRA STRENGTHEN COLLABORATION IN TROPICAL BIOTECHNOLOGY RESEARCH AND DEVELOPMENT

On Wednesday, 31 July 2024, SEAMEO BIOTROP and Universitas Samudra Aceh (UNSAM) held a discussion and signed a Memorandum of Agreement (MoA) in the Jati Room of SEAMEIO BIOTROP Campus. The event was attended by UNSAM Rector Prof Dr Ir Hamdani, MT., faculty members from UNSAM and the Director and staff of SEAMEO BIOTROP.

This visit marked the beginning of a strategic collaboration between the two institutions in the field of tropical biotechnology research and development. Discussions covered various potential areas of cooperation, including knowledge exchange, joint research, and training programs for students and staff.

The event was started with a welcoming speech delivered by the Acting Deputy Director for Administration of SEAMEO BIOTROP, Ms Sri Widayanti, MSi. She expressed her gratitude and welcomed the UNSAM delegation, stating "I would like to thank the Rector and his team for coming all the way from Aceh to visit SEAMEO BIOTROP, not only to sign the collaboration agreement, but also to see our facilities."

Dr Zulhamsyah Imran, Director of SEAMEO BIOTROP, also welcomed the collaboration and thanked UNSAM for their trust: "I want to express my gratitude to Universitas Samudra for their trust in collaborating with SEAMEO BIOTROP. Please take advantage of our various facilities and programs, which are available for both faculty members and students to enhance their capacity in Tropical Biology."

In addition to the discussion and MoA signing, the Rector and his team toured the BIOTROP facilities and shared their impressions afterward. Prof Dr Ir Hamdani remarked, "My impression is that BIOTROP is well-equipped to handle all biodiversity issues in Indonesia, particularly tropical biology. It is impressive to see the diverse range of plants and fish in the tropics and the research and development efforts BIOTROP has undertaken. This facility can significantly contribute to addressing Indonesia's biodiversity challenges, especially with changing weather patterns. This visit should inspire not only Universitas Samudra, but also all institutions in Indonesia should visit SEAMEO BIOTROP to learn more about tropical biology development."





The positive remarks underscored the UNSAM Rector's admiration for the capabilities of SEAMEO BIOTROP in addressing biodiversity challenges in Indonesia, particularly on tropical biology research and development. The remarks also highlighted the expectation that institutions across Indonesia will visit SEAMEO BIOTROP to gain insight into tropical biology development.(hcn)

# SEAMEO BIOTROP AND UNIVERSITAS HASANUDDIN SIGN IMPLEMENTATION AGREEMENT FOR TROPICAL BIOTECHNOLOGY DEVELOPMENT

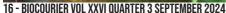
In order to deepen and expand collaboration on tropical biotechnology research and development, SEAMEO BIOTROP and Universitas Hasanuddin signed an Implementation Agreement on 31 July 2024 at the Campus of SEAMEO BIOTROP. The signatories were the Dean of the Faculty of Forestry, Universitas Hasanuddin, Dr Ir A. Mujetahid M., SHut, MP, IPU and the Acting Deputy Director for Administration of SEAMEO BIOTROP, Ms Sri Widayanti, MSi.

The signing of the Implementation Agreement marked a crucial step in strengthening and broadening the collaboration between SEAMEO BIOTROP and Universitas Hasanuddin, with a focus on advancing research and development in tropical biotechnology. This agreement is expected to bring positive impacts to both institutions in the development of science and technology in this specialized field.

To start the event, the Acting Deputy Director for Administration of SEAMEO BIOTROP, Ms Sri Widayanti, MSi, delivered a welcome remarks to warmly welcome the delegation from Universitas Hasanuddin. She stated "Welcome back to SEAMEO BIOTROP. On behalf of the Director, I am proud and honored to welcome you here. This is our second meeting. We are really pleased to continue the well-established collaboration."









"Ihope that this agreement will be implemented soon. We have several projects ready for collaboration, including locations for trials. We have a special forest area designated for education. We are waiting for the right time to proceed", said the Dean of the Faculty of Forestry, Universitas Hasanuddin, Dr Ir A. Mujetahid M., SHut, MP, IPU.

This collaboration is expected to make a significant contribution to the advancement of knowledge and technology in tropical biotechnology and strengthen the relationship between SEAMEO BIOTROP and Universitas Hasanuddin.(hcn)

#### SEAMEO BIOTROP HOLDS A SHARING SESSION INTRODUCING METAVERSE FOR CAPSTONE INTERNS

SEAMEO BIOTROP held a Sharing Session with the theme "Introduction to the Metaverse for Capstone Interns". This activity aimed to increase knowledge and support learning at the university level. This event took place from 13.00 WIB to 16.00 WIB at the Jati Room of SEAMEO BIOTROP on Monday, 22 July 2024.

In this session, Dr Gatot Hari Priowirjanto and Mr Raka Fauzan Hatami from GEMA Foundation introduced the concept of the Metaverse to Capstone interns at SEAMEO BIOTROP. Participants learned about how the Metaverse can transform interactions with technology and its potential benefits for their internships and business projects.

The event was attended by 30 SEAMEO BIOTROP Capstone interns from various universities, including Padjajaran University, IPB University, Bangka Belitung University, Brawijaya University, Universitas POLITEKNIK Kelapa Sawit Citra Widya Edukasi, UIN Sultan Maulana Hasanuddin Banten, Pakuan University, and Djuanda University.

Ms Dewi Suryani, MM, Manager of the Human Centered Innovation Department, representing the Director of SEAMEO BIOTROP, encouraged students to actively participate in the session. "Today, the students will be introduced to the metaverse. After this, we will have more discussions, and I hope the session will be an interactive forum where participants can ask questions, satisfy their curiosity, and show active participation," she said.

Dr Gatot Hari Priowirjanto expressed his hope that the event would broaden students' mindsets and foster job creation. "I hope that students can have a different perspective and an open mindset, so that they can see new opportunities and create jobs," he said.

Agam, a student from Universitas Politeknik Kelapa Sawit Citra Widya, found the session highly engaging and informative. "I personally think that this is a very interesting topic, because the application of the Metaverse can stimulate our imagination and make us to be more interested in BioTopics. Seeing things visually helps our brains to record information directly," he said. (ydl)



# REVIVING KARST LANDSCAPE, UNIVERSITAS HASANUDDIN IN COLLABORATION WITH SEAMEO BIOTROP CONDUCT TRAINING ON MYCORRHIZA

In an effort to explore the biological agent for rehabilitating degraded karst areas, the Karst Microbe Research Collaboration Center of Universitas Hasanuddin, the National Research and Innovation Agency, and SEAMEO BIOTROP held a training on Molecular Mycorrhiza with theme "Isolation Techniques, Morphological and Molecular Identification". The training was held on 6–9 August 2024 at the LPPM (Institute for Research and Community Services) of Universitas Hasanuddin.

Fifteen participants from various backgrounds actively participated in this training, including university lecturers, students, researchers, government officials, and representatives from private sectors who are actively engaged in mycorrhizal research and applications.

"One of the roles of mycorrhiza is that it can be used as a biological agent for rehabilitating degraded karst areas. Therefore, it is essential to learn about mycorrhiza, especially about the molecular aspect," stated Dr Siti Halimah Larekeng, the Head of the Karst Microbial Research Collaboration Center of Universitas Hasanuddin, in her opening remarks of the training. She also stated that the Center aimed at becoming a reference for researching and developing potential karst microbes, including mycorrhiza.

Prof Muh. Nasrum Massi, PhD, Sp.MK, the Head of LPPM Universitas Hasanuddin, highlighted the importance of interdisciplinary collaboration in addressing complex environmental challenges. "By integrating various disciplines and gathering unique resources, such as technology, data, and expertise, collaborative efforts can lead to innovative solutions," he stated.

The resource person of this training was Ms Risa Rosita, SSi, MSi, the Head of Section of Environmental Technology and Security of SEAMEO BIOTROP. Her sessions covered a wide range of topics, such as an introduction to tools for morphological and molecular identification of mycorrhizae, an overview of mycorrhizae, techniques for extracting and isolating mycorrhizal spores, and methods for mycorrhizal DNA extraction.





A key highlight of the training was the successful amplification of six mycorrhizal samples using the PCR (polymerase chain reaction) technique, demonstrating the practical application of the knowledge gained. Mycorrhizae are vital in addressing climate change due to their significant impact on the carbon cycle, plant resilience to environmental stress, and overall ecosystem health. (rr, hcn)

# TO ENHANCE WRITING AND SOCIAL MEDIA BRANDING SKILLS: SEAMEO BIOTROP HOSTS IN-HOUSE TRAINING

SEAMEO BIOTROP held an In-House Training with theme "Publication: Developing Article Writing Skills and Visual Branding on Social Media" on 20 August 2024 in the Jati Room of SEAMEO BIOTROP. The training was participated by managers, public relation team of SEAMEO BIOTROP, and representatives from each department and unit in SEAMEO BIOTROP. The resource person was Mr Danasmoro Brahmantyo from the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia.

This training aimed to enhance participants' skills in writing effective articles and building strong visual branding on social media. Through this training, participants were expected to master good writing techniques and understand relevant visual branding principles, thereby supporting more professional and strategic publication and promotion efforts for the institution. The event also aimed to strengthen SEAMEO BIOTROP's internal capacity in delivering information to the public in a more engaging and impactful way.

Enhancing the exposure of activities carried out by SEAMEO BIOTROP is crucial for reaching different segments within various institutions. As a research, capacity building, and information dissemination organization, we have a duty to provide information that enhances understanding of tropical biology. This event is expected to motivate all departments and units to become contributors and content creators, whether in the form of articles or videos," stated Dr Zulhamsyah Imran, Director of SEAMEO BIOTROP, in his welcome remarks.



The training focused on improving the skills of the staff of SEAMEO BIOTROP in writing articles and developing visual branding on social media. In-depth sessions on effective article writing techniques and visual branding strategies are among the topics covered in this training.

"Effective public communication requires establishing a main narrative and implementing a well-thought strategy, including research, planning, and evaluation," stated Mr Danasmoro Brahmantyo, the resource person of this training. Furthermore, he emphasized the importance of consistency in strategies and tactics to minimize risks and ensure successful public communication.(ydl)



