

CFAIとGP-Foodのジョイントセミナーを開催しました



On November 13th, 2025, CFAI, along with GP-Food, held a joint seminar at Tohoku University Graduate School of Agricultural Science, inviting Prof. Azis Boing Sitanggang and Dr. Lukmanul Hakim Zaini from IPB University, Indonesia. The seminar discusses innovative studies in biomaterials processing and engineering conducted by the two researchers.

Within the first session of the seminar, Prof. Azis Boing Sitanggang held a lecture titled “Process engineering perspective of bioactive peptide production.” He explained the process of producing bioactive peptides from various sources, such as soybean, velvet bean, and jack bean, using an enzymatic membrane reactor (EMR). This system allows continuous peptide production, unlike a batch production system. The application of this system was evaluated by measuring the ACE-inhibiting capacity of the produced biopeptides, therefore assessing product quality. He also estimated the fouling rate by measuring transmembrane pressure to appraise the operational process. Since he is also working on using nanoparticles to produce a multiphase system, he mentioned the possibility of combining these two studies in the future, namely by developing a peptide to enhance emulsifying properties.

In the second session, Dr. Lukmanul Hakim Zaini held a lecture titled “Renewable materials and biocomposites: molded pulp packaging products.” In his lecture, he discusses the utilization of renewable materials such as oil palm trunk, kenaf, kapok fibers, and other fast-growing wood species. The materials

were then used to produce lignin-containing cellulose nanofibrils and other applications of renewable materials and biocomposites, such as thermal insulation foamed panels and molded pulp packaging. To prepare nanofibrils from these renewable materials, various treatments, including both chemo-mechanical and mechanical processes, were employed. The treated fibers were then formed into their final products. For example, to produce foamed insulation panels, the fibers were mixed with either surfactants or wheat gluten and foamed before being molded. On the other hand, molded pulp packaging was produced using a 3D-printed perforated model mold under vacuum. The goals of these projects are to produce environmentally friendly processes and sustainable products.

Beyond their respective themes, Prof. Azis Boing Sitanggang and Dr. Lukmanul Hakim Zaini also highlighted the potential for interdisciplinary collaboration. The seminar concluded on an inspiring note, encouraging further research partnerships and emphasizing the urgency of developing efficient and sustainable technologies.

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