



## DEPARTMENT OF FOOD & AGRICULTURAL PRODUCT TECHNOLOGY

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### STAFF HANDBOOK

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|---------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| Name                                                    | Dr.rer.nat. Lucia Dhiantika Witasari, S.Farm., Apt., M. Biotech.      |                                                                                                                                                                                                                                                                                                         |              |
| Post                                                    | Molecular Biotechnology in Food and Agricultural Product Applications |                                                                                                                                                                                                                                                                                                         |              |
| Academic career                                         | Doctoral Degree (Science)                                             | Technische Universität München (TUM), Germany                                                                                                                                                                                                                                                           | 2013-2019    |
|                                                         | Master Degree (Biotechnology)                                         | Universitas Gadjah Mada, Indonesia                                                                                                                                                                                                                                                                      | 2007-2009    |
|                                                         | Undergraduate Degree (Pharmacy)                                       | Universitas Gadjah Mada, Indonesia                                                                                                                                                                                                                                                                      | 2002-2006    |
| Employment                                              | Lecturer                                                              | Universitas Gadjah Mada, Indonesia                                                                                                                                                                                                                                                                      | 2015-present |
| Research and development projects over the last 5 years | No                                                                    | Title of Research and Development Projects                                                                                                                                                                                                                                                              |              |
|                                                         | 1                                                                     | Aflatoxin B1 degrading enzyme from <i>Aspergillus oryzae</i> KKB4: a comprehensive study from genomic, proteomic to function<br>Period: 2024<br>Amount of Financing: 60 million rupiah<br>Personnel: <b>Lucia Dhiantika W</b> , Retno I, FMC Sigit S                                                    |              |
|                                                         | 2                                                                     | Enzymatic interesterification of red palm oil (RPO) using thermostable lipase for the formulation and production of zero trans shortening high in phytonutrients<br>Period: 2024<br>Amount of Financing: 107.39 million rupiah<br>Personnel: <b>Lucia Dhiantika W</b> , Retno I                         |              |
|                                                         | 3                                                                     | Identification, cultivation, development, and bioprospection of Indonesian native edible mushrooms as an effort to preserve biodiversity and improve national food security and health<br>Period: 2023<br>Amount of Financing: 65 million rupiah<br>Personnel: Sari Darmasiwi, <b>Lucia Dhiantika W</b> |              |
|                                                         | 4                                                                     | Expression, characterization, and 3D structural modeling of thermostable recombinant neutral protease (NPR) enzymes from the thermophilic bacterium <i>Geobacillus</i> sp. DS3<br>Period: 2022<br>Amount of Financing: 30 million rupiah                                                                |              |



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|                                               |                              | Personnel: <b>Lucia Dhiantika W</b>                                                                                                                                                                                                                                    |      |
|                                               | 5                            | Bioprospecting of termite fungus combs: antioxidant, antimicrobial, and anticancer activities of termite fungus combs<br>Period: 2022<br>Amount of Financing: 50 million rupiah<br>Personnel: <b>Lucia Dhiantika W</b>                                                 |      |
|                                               | 6                            | Cloning of the thermostable beta-galactosidase enzyme gene from the indigenous thermophilic bacterium <i>Brevibacillus</i> sp. for lactose-free milk production<br>Period: 2020, 2021<br>Amount of Financing: 75 million rupiah<br>Personnel: <b>Lucia Dhiantika W</b> |      |
|                                               | 7                            | Purification of glucomannan from porang flour ( <i>Amorphophallus muelleri</i> Bl.) through enzymatic liquefaction using thermostable amylase<br>Period: 2020<br>Amount of Financing: 15 million rupiah<br>Personnel: <b>Lucia Dhiantika W</b>                         |      |
| Industry collaborations over the last 5 years | No                           | Industry                                                                                                                                                                                                                                                               | Year |
|                                               |                              |                                                                                                                                                                                                                                                                        |      |
| Patents and proprietary rights                | No                           | Title                                                                                                                                                                                                                                                                  | Year |
|                                               | 1                            | Encapsulation of Red Palm Oil (RPO) Using Porous Starch from Ganyong Tubers ( <i>Canna Edulis</i> Kerr.)                                                                                                                                                               | 2024 |
|                                               | 2                            | Enzymatic interesterification of red palm oil using Lipozyme TL IM                                                                                                                                                                                                     | 2024 |
|                                               | 3                            | Porous starch from arrowroot ( <i>Maranta arundinacea</i> L.) and its manufacturing process                                                                                                                                                                            | 2023 |
|                                               | 4                            | Porous starch from ganyong ( <i>Canna edulis</i> Kerr.) and its manufacturing process                                                                                                                                                                                  | 2023 |
|                                               | 5                            | Technology for producing edible films based on porang glucomannan and sorbitol                                                                                                                                                                                         | 2023 |
|                                               | 6                            | Performing SDS-PAGE (Sodium dodecyl sulfate polyacrylamide gel electrophoresis)                                                                                                                                                                                        | 2021 |
|                                               | 7                            | DNA Cloning                                                                                                                                                                                                                                                            | 2020 |
|                                               | 8                            | Agarose Gel Electrophoresis                                                                                                                                                                                                                                            | 2020 |
|                                               | 9                            | Recombinant <i>Escherichia coli</i> producing thermostable alpha-amylase enzyme from <i>Brevibacillus</i> sp.                                                                                                                                                          | 2020 |
| Important publications over the last 5 years  | Selected recent publications |                                                                                                                                                                                                                                                                        |      |
|                                               | 1                            | <b>Witasari, L. D.</b> , Nistrina, S., Yani, A. I. T., Heryadi, A. A., & Pranoto, Y. (2024). Characterization of porous starch produced from arrowroot ( <i>Maranta arundinacea</i> L.) by enzymatic hydrolysis with $\alpha$ -amylase and glucoamylase.               |      |



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|    | Carbohydrate Polymer Technologies and Applications, 7:100445. <a href="https://doi.org/10.1016/j.carpta.2024.100445">https://doi.org/10.1016/j.carpta.2024.100445</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 2  | <b>Witasari, L. D.</b> , Heryadi, A. A., Yani, A. I. T., Nisrina, S., Purwitasari, L., & Pranoto, Y. (2024). Characterization of porous starch produced from edible canna ( <i>Canna edulis Kerr.</i> ) via enzymatic hydrolysis using thermostable $\alpha$ -amylase and glucoamylase. Biocatalysis and Agricultural Biotechnology, 55, 102990. <a href="https://doi.org/10.1016/j.bcab.2023.102990">https://doi.org/10.1016/j.bcab.2023.102990</a> .                                                                                                                                                                 |
| 3  | Hermawan, S., Jefferson, C., Hertanto, D. M., Sudiana, K., Hernugrahanto, K. D., Utomo, D. N., Budhiparama, N. C., Nurhan, A. D., Rahmadi, M., Nandika, D., Karlinasari, L., Arinana, Batubara, I., <b>Witasari, L. D.</b> , Rachmayanti, Y., Firmasyah, D., Karim, S. A., Ariffin, I. A., & Santoso, D. (2024). Ethyl acetate extract of fungus comb from Malayan termite ( <i>Macrotermes gilvus</i> Hagen) mound modulates splenic inflammatory responses in mice. Open Veterinary Journal, 14(9): 2269-2279. <a href="https://doi.org/10.5455/OVJ.2024.v14.i9.15">https://doi.org/10.5455/OVJ.2024.v14.i9.15</a> . |
| 4  | Iskandar, N. F., Cahyono, L. B., Harmayani, E., & <b>Witasari, L. D.</b> (2024). High purity glucomannan after ultrasonic-assisted extraction and $\alpha$ -amylase liquefaction of porang ( <i>Amorphophallus oncophyllus</i> ) flour. Food Research, 8(3): 242-251. <a href="https://doi.org/10.26656/fr.2017.8(3).212">https://doi.org/10.26656/fr.2017.8(3).212</a> .                                                                                                                                                                                                                                              |
| 5  | Tamimi, K. A., Hidayat, C., Utami, T., & <b>Witasari, L. D.</b> (2023). Flavor precursor formation of non-fermented forastero cocoa beans after flavourzyme® and glucose treatment. LWT, 184, 114910. <a href="https://doi.org/10.1016/j.lwt.2023.114910">https://doi.org/10.1016/j.lwt.2023.114910</a> .                                                                                                                                                                                                                                                                                                              |
| 6  | Nandika, D., Arinana, Karlinasari, L., Batubara, I., Santoso, D., <b>Witasari, L. D.</b> , Rachmayanti, Y., Firmansyah, D., Sudiana, I. K., Hertanto, D. M., Hadi, Y. S., & Rahman, M. M. (2023). Efficacy of Fungus Comb Extracts Isolated from Indo-Malayan Termite Mounds in Controlling Wood-Decaying Fungi. Forests, 14(6), 1115. <a href="https://doi.org/10.3390/f14061115">https://doi.org/10.3390/f14061115</a> .                                                                                                                                                                                             |
| 7  | Rachmayanti, Y., Firmansyah, D., Umma, R. R., Hertanto, D. M., Sudiana, I. K., Santoso, D., Nandika, D., Karlinasari, L., Arinana, Batubara, I., & <b>Witasari, L. D.</b> (2022). Antioxidant Activity of Fungus Comb Extracts Isolated from Indo-Malayan Termite <i>Macrotermes gilvus</i> Hagen (Isoptera: Termitidae). Indonesian Journal of Chemistry, 22(6). <a href="https://doi.org/10.22146/ijc.77227">https://doi.org/10.22146/ijc.77227</a> .                                                                                                                                                                |
| 8  | <b>Witasari, L. D.</b> , Wahyu, K. W., Anugrahani, B. J., Kurniawan, D. C., Haryanto, A., Nandika, D., Karlinasari, L., Arinana, Batubara, I., Santoso, D., Rachmayanti, Y., Firmansyah, D., Sudiana, I. K., & Hertanto, D. M. (2022). Antimicrobial activities of fungus comb extracts isolated from Indomalayan termite ( <i>Macrotermes gilvus Hagen</i> ) mound. AMB Express, 12:14. <a href="https://doi.org/10.1186/s13568-022-01359-0">https://doi.org/10.1186/s13568-022-01359-0</a> .                                                                                                                         |
| 9  | Phon, S., Ningrum, A., & <b>Witasari, L. D.</b> (2022). Purification and characterization of thermostable serine alkaline protease from <i>Geobacillus</i> sp. DS3 isolated from Sikidang crater, Dieng plateau, Central Java, Indonesia. Indonesian Journal of Biotechnology, 27(2): 73-79. <a href="https://doi.org/10.22146/ijbiotech.65822">https://doi.org/10.22146/ijbiotech.65822</a> .                                                                                                                                                                                                                         |
| 10 | Nandika, D., Karlinasari, L., Arinana, Batubara, I., Sitanggang, P. S., Santoso, D.,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |



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|                                                       |    | <b>Witasari, L. D.</b> , Rachmayanti, Y., Firmansyah, D., Sudiana, I. K., Hertanto, D. M. (2021). Chemical components of fungus comb from Indo-Malayan termite <i>macrotermes gilvus</i> hagen mound and its bioactivity against wood-staining fungi. Forests, 12(11), 1591.<br><a href="https://doi.org/10.3390/f12111591">https://doi.org/10.3390/f12111591</a> . |                                                        |           |
| Activities in specialist bodies over the last 5 years | No | Organization                                                                                                                                                                                                                                                                                                                                                        | Role                                                   | Period    |
|                                                       | 1  | Indonesian Association of Food Technologists (PATPI)                                                                                                                                                                                                                                                                                                                | Promotion and Organization Division, Yogyakarta Branch | 2024-2027 |