

Faculty of Applied Biological Sciences
Gifu University

Annual Report of Research Activities 2023

Vol. 20

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I Research Achievement

1) Academic Paper

【Course of Applied Life Science】

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- [5] **Nakagawa T**.
“The potential and capability of the methylotrophic yeast *Ogataea methanolica* in a "methanol bioeconomy”
Bioeconomy 2023(Indian Institute of Technology Guwahati), 2023/10/11-12
- [6] Oshima T, **Imaizumi T**, **Katsuno N**, **Nishizu T**.
“Changes in tissue structure and electrical properties of apple by vacuum impregnation treatment”
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- [7] Ota H, Hayashi K, **Nishizu T**, **Imaizumi T**, **Katsuno N**.
“Color retention effect of maltobionic acid on pickled eggplant”
37th EFFoST International Conference(Valencia, Spain), 2023/11/06-09
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“Synthesis and evaluation of (S)-5’-C-aminopropyl-2’- fluoro-modified nucleic acids for siRNA therapeutics”
The 7th Annual Meeting of Japan Society of Nucleic Acids Chemistry(Miyazaki), 2023/11/01
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“Proton pump mechanism driven by the redox changes of metal centers in bovine heart cytochrome c oxidase.”
The 23rd Annual Meeting of the Protein Science Society of Japan(Nagoya, Japan), 2023/07/07
- [10] Suzuki M, Nonobe E, Aoki H, **Katsuno N**, **Imaizumi T**, **Nishizu T**.
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- [11] Taguchi Y, Kouzai D, Naitou H, Nishiawa K, Fujiyoshi Y, Tani K, Ishimori K, **Shimada A**.
“Electron transfer mechanism proposed by the cryo-EM structure of cytochrome c and cytochrome c oxidase complex”
The 61st Annual Meeting of the Biophysical Society of Japan (Nagoya) , 2023/11/14-16
- [12] Takeda K, Ishihara K, Nishikawa T, Kamiya J, **Yanase E**, **Nishizu T**, **Imaizumi T**, **Katsuno N**.
“Influence of pest infestation on tea leaf composition during the growth and processing stages”
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 “Analysis of the electronic state of the metal sites of cytochrome c oxidase using simultaneous XES and XRD measurements”
 The 61st Annual Meeting of the Biophysical Society of Japan (Nagoya) , 2023/11/14-16
- [14] Umehara A, **Imaizumi T**, **Katsuno N**, **Nishizu T**.
 “Changes of carrot cell membrane and leakage of intracellular ion induced by low temperature blanching ”
 14th International Congress on Engineering and Food(Nantes, France), 2023/06/20-23
- [15] Wakita N, **Imaizumi T**, **Nakano K**, **Katsuno N**, **Nishizu T**.
 “Profile of primary metabolic components of edible crickets fed with vegetable powders”
 14th International Congress on Engineering and Food(Nantes, France), 2023/06/20-23
- [16] Woo S, Shulman IG, **Shimada A**.
 “Interaction analysis between Guanidine/biguanides and a terminal enzyme of mitochondrial respiratory chain”
 The 61st Annual Meeting of the Biophysical Society of Japan (Nagoya) , 2023/11/14-16

【Course of Agricultural and Environmental Science】

- [1] Aldian D, Harisa DL, **Yayota M**.
 “Mix hay feeding associated with higher physiological stress tolerance in ruminants revealed by metabolomics.”
 2023 Japanese Society of Grassland Science (Sapporo) , 2023/03/26
- [2] Arakawa T, **Tanaka T**, Kamio S, Nanba K, Akagi T.
 “Estimation of yield and fruit load based on detection of on-tree chestnut fruits using deep learning and RGB UAV imagery ”
 The 4th Asia Horticultural Congress(Tokyo, Japan), 2023/08/28-31
- [3] Chen Dai, **Tsutomu Matsui**, **Takashi S. T. Tanaka**.
 “Establishing a web-application platform for data visualization to enhance collaboration between researchers and farmers”
 Proceedings of the JASS 2023 Annual Meeting (Higashihiroshima) , 2023/11/11
- [4] Harisa DL, Aldian D, **Yayota M**.
 “Associative effect of forage diversity on herbage productivity, nutritive value, total flavonoid and polyphenol contents in forage and ruminal fluid.”
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- [5] Jingyun He, **Tsutomu Matsui**, **Takashi S. T. Tanaka**.
 “Evaluating potential of Fourier transform infrared spectroscopy and machine learning approaches to predict soil pH and mineralizable nitrogen”
 Proceedings of the JASS 2023 Annual Meeting (Higashihiroshima) , 2023/11/11
- [6] Kinoshita K, Yoshimura H, Qi H, Shimada J, Hayakawa T, **Kusuda S**, Khanal G.
 “An attempt to evaluate the physiology of wild snow leopards using fecal steroid hormone analysis”
 8th Conference of the International Society of Wildlife Endocrinology(India), 2023/11/08
- [7] Luthfan Nur Habibi, **Tsutomu Matsui**, **Takashi S. T. Tanaka**.
 “The effects of a cross-validation approaches on the model transferability of a soybean yield prediction model using UAV-based remote sensing”
 Proceedings of the JASS 2023 Annual Meeting (Higashihiroshima) , 2023/11/11
- [8] Luthfan Nur Habibi, **Tsutomu Matsui**, **Takashi S. T. Tanaka**.
 “Assessing the impact of soil clod and variable rate seeding rate on soybean seedling establishment and yield in Japanese paddy fields using Bayesian approach ”
 OFE2023(Online), 2023/12/05-07
- [9] Md Suruj Mia, Ryoya Tanabe, Luthfan Nur Habibi, Naoyuki Hashimoto, Koki Homma, Masayasu Maki, **Tsutomu Matsui**, **Takashi S. T. Tanaka**.
 “Rice yield prediction using UAV-based multispectral imagery and weather data through multimodal deep learning”
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- [10] **Ochiai M**, Maruyama D, Haruyama J, **Yamada K**.
 “Individual differences in disease progression of rose crown gall disease in a cross population between tetraploid *Rosa multiflora* and R. ‘PEKcougel’”
 The 4th Asia Horticultural Congress(Tokyo, Japan), 2023/08/28
- [11] **Takashi S. T. Tanaka**, Yui Yokoyama, Taro Mieno, Allard de Wit.
 “Synthetic data generation for validating site-specific crop yield response modelling using WOFOST and gaussian geostatistical simulations”
 The 14th European Conference on Precision Agriculture(Bologna, Italy), 2023/07/02-06
- [12] Umami Marfiah, Jingyun He, Kazuki Kojima, **Tsutomu Matsui, Takashi S. T. Tanaka**.
 “Using the Bayesian approach to quantify the impact of soil silicon availability on rice yield and quality in a Japanese mountainous region”
 Proceedings of the JASS 2023 Annual Meeting (Higashihiroshima) , 2023/11/11
- [13] Umami Marfiah, Jingyun He, Kazuki Kojima, **Tsutomu Matsui, Takashi S. T. Tanaka**.
 “Assessing the effects of fertilizer management and soil characteristics on rice yield and quality in Japanese mountainous paddy fields”
 OFE2023(Online), 2023/12/05-07
- [14] Yui Yokoyama, Allard de Wit, **Tsutomu Matsui, Takashi S. T. Tanaka**.
 “Predicting plant-level cabbage yield by assimilating UAV-derived LAI into a crop simulation model ”
 The 14th European Conference on Precision Agriculture(Bologna, Italy), 2023/07/02-06

【Joint Department of Veterinary Medicine】

- [1] Hyodo F, Elhelaly AE, Iwasaki R, Noda Y, Mori T, Adachi K, Tomita H, Kato H. **Mori T**, Matsuo M.
 “Early assessment of radiation treatment at clinical field strength by D2O administration and deuterium MRI. ”
 American Society for Radiation Oncology 65th Annual Meeting(San Diego, California), 2023/10/01-04
- [2] Kamio T, Odani Y, Kanda K, Akune Y, Kurita M, **Okada A, Inoshima Y**.
 “Comparison of fungal isolation from bronchoalveolar lavage and exhaled blowhole sample in beluga whale (*Delphinapterus leucas*) with bronchial tree system analysis”
 The 55th Annual Conference of the International Association for Aquatic Animal Medicine 2023 (Salt Lake City, Utah, Hybrid), 2023/05/21-24
- [3] Matsuo M, Hyodo F, Mori T, Hiroshi K, Iwasaki R, Takasugi N, Tomita H, **Mori T**.
 “The new quantum image by dynamic nuclear polarized MRI for the assessment of cardiac radioablation to the cavotricuspid isthmus. ”
 American Society for Radiation Oncology 65th Annual Meeting(San Diego, California), 2023/10/01-04
- [4] **Nagata N**, Sawamura H, Morishita K, Hosoya K, Sasaki N, Nakamura K, Ikenaka Y, Takiguchi M.
 “Urinary steroid profile using liquid chromatography-tandem mass spectrometry as a promising diagnostic tool for canine Cushing’s syndrome”
 The 33rd ECVIM-CA Congress(Barcelona, Spain), 2023/09/21-23
- [5] Nakao M, Hattori M, Kumano A, **Unno T**, Tanahashi Y.
 “Regulation of smooth muscle contraction in mouse ileum by mechanosensitive cationic piezo1 channels expressed in interstitial cells of Cajal”
 The 10th Federation of the Asian and Oceanian Physiological Societies Congress (FAOPS2023) (Daegu, Korea), 2023/11/01-04
- [6] Rahman MM, Nakanishi R, Tsukada F, Takashima S, Kamatari YO, Shimizu K, **Okada A, Inoshima Y**.
 “Identification of suitable internal control mRNAs and miRNAs in bovine milk small extracellular vesicles for normalization in quantitative real-time polymerase chain reaction”
 International Society for Extracellular Vesicles 2023 Annual Meeting (Seattle, Washington), 2023/05/17-21
- [7] Saki ME, Kamio T, Kohyama K, Rahman MM, Shimizu K, **Okada A, Inoshima Y**.
 “Comparative study on immunoglobulins from pinnipeds and cetaceans using proteins A, G, and AG”
 The 11th Sapporo Summer Symposium for One Health (Sapporo, Japan), 2023/09/14-15
- [8] Sawamura T, Horii K, Yuki N, **Shiina T, Shimizu Y**.
 “Alteration in neural composition of central pathways regulating colorectal motility in Parkinson's disease model in rats”
 The 10th Federation of the Asian and Oceanian Physiological Societies Congress (FAOPS2023) (Daegu, Korea), 2023/11/01-04

- [9] **Shimizu Y**, Horii Y, Okadera K, **Shiina T**,
 “Suncus murinus as a suitable model for studying daily torpor.”
 The 10th Federation of the Asian and Oceanian Physiological Societies Congress (FAOPS2023) (Daegu, Korea), 2023/11/01-04
- [10] Yuki N, Sawamura T, Horii K, Yamaguchi H, Yamanaka A, **Shiina T**, **Shimizu Y**.
 “Neural pathways of the dorsomedial hypothalamus activation-induced enhancing colorectal motility”
 The 10th Federation of the Asian and Oceanian Physiological Societies Congress (FAOPS2023) (Daegu, Korea), 2023/11/01-04

【Research Center for Wildlife Management】

- [1] Ikeda T, **Suzuki T**.
 “Challenges of invasive alien raccoon management in Japan”
 Advances in Management of Invasive Alien Mammals 2023(Online), 2023/02/23
- [2] Mameno K, **Suzuki T**, Kubo T.
 “Citizens' prioritization of invasive species management”
 The 70th Annual Meeting of the Ecological Society of Japan (Sendai) , 2023/03/18

2) Academic lecture

【Course of Applied Life Science】

- [1] Hirano T, Kunieda M, Yoshisuji K, Hashimoto T, **Katsuno N**, **Imaizumi T**, **Nishizu T**.
 “The effect of lipase and glucose oxidase on the retrogradation of starch in frozen cooked rice”
 14th International Congress on Engineering and Food(Nantes, France), 2023/06/20-23 (Invitation lecture)
- [2] **Yamauchi K**.
 “Finding of active compound from medicinal plants”
 International Conference on Indigenous Knowledge for Sustainable Agriculture (ICIKSA)(Online), 2023 (Invitation lecture)

【Course of Agricultural and Environmental Science】

- [1] **Takashi S. T. Tanaka**.
 “Data analytics for on-farm experimentation using precision agricultural technology”
 The NU Tech Roundtable 2023 Digital & Engineering AgTech(USA), 2023/01/26 (Invitation lecture)



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