Poster Program

Session 1 Bio-resource and Genomics

P-01 Bioresource project for legume plant research in Japan

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P-02 *Bradyrhizobium* from sorghum roots suggests T3SS/T4SS/T6SS diversity and symbiosis island exchange in non-diazotrophic and rhizobial members of *B. ottawaense*

*Sawa Hara[1], Shintaro Hara[1], Takashi Morikawa[1], Masayuki Sugawara[1], Junichi Yoneda[2] Tsuyoshi Tokunaga[2], and Kiwamu Minamisawa[1]
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P-03 Experimental genome deletion via insertion sequences on bradyrhizobial symbiosis island by *sacB* system

*Haruka Arashida, Haruka Odake, Masayuki Sugawara, Hisayuki Mitsui and Kiwamu Minamisawa
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P-04 Web interface of arbuscular mycorrhizal fungal and bacterial classification pipeline

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Session 2 Plant-Microbe interaction

P-05 Trapping native arbuscular mycorrhizal fungi by young thalli of liverwort *Marchantia paleacea*

Yoshihiro Kobae[1,2], Ryo Ohtomo[2], Sho Morimoto[2], *Daiki Sato[1], Tomomi Nakagawa[3], Norikuni Oka[2], Shusei Sato[4]
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P-06 Role of type IV secretion system (T4SS) in Bradyrhizobium-legume symbiosis

*Kamonluck Teamtisong[2], Praneet Wangthaisonga[1], Pongdet Piromyoua[1], Pongpan Songwattanaa[1], Panlada Tittabutra[1], Nantakorn Boonkerda[1] and Neung Teaumroonga[1]
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P-07 *Bacillus velezensis* S141 facilitates the development of nodules in soybean with *Bradyrhizobium diazoefficiens* USDA110

*Takahiko Kondo[1], Surachat Sibponkrung[2], Panlada Tittabutr[2], Nantakorn Boonkerd[2], Neung Teaumroong[2], Ken-ichi Yoshida[1]
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P-08 Genetics analysis of *Bacillus velezensis* S141 on increasing N_2 fixation efficiency of soybean-Bradyrhizobium symbiosis

Surachat Sibponkrung[1], Kondo Takahiko[2], Kousei Tanaka[3], Panlada Tittabutr[1], * Nantakorn Boonkerd[1], Ken-ichi Yoshida[2], and Neung Teaumroong[1]
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P-09 **Mechanism of rice endophytic bradyrhizobial cell differentiation and its role on nitrogen fixation**

*Teerana Greetatorn[1], Shun Hashimoto[2], Panlada Tittabutr[1], Toshiki Uchiumi[2] and Neung Teaumroong[1]

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P-10 **Rice (*Oryza sativa* L.) Plant Growth Enhanced by Co-inoculation with Heterotrophic Protists and *Azospirillum* sp. strain B510**

*Keiko Shiroishi[a], Kazuki Suzuki[b], Oguz Can Turgay[c], Jun Murase[d], Naoki Harada[e], Rasit Asiloglu[f]

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P-11 **Biofilm formation in the root-associative nitrogen-fixing bacterium *Pseudomonas stutzeri* A1501**

*Min Lin, Liguo Shang, Yuhua Zhan and Yongliang Yan

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P-12 **Analysis of the effects of sathopine on the soil bacterial communities and isolation of santhopine degrading bacteria**

*Tomohisa Shimasaki[1], Takashi Kawasaki[1], Yuichi Aoki[2], Kazufumi Yazaki[1], Akifumi Sugiyama[1]

[1]RISH, Kyoto Univ., [2]Tohoku Medical Megabank Organization.,Tohoku Univ.

P-13 **A comparative analysis for the rhizosphere microbiome of higher plants**

*Yuichi Aoki, Shinichi Yamazaki

ToMMo, Tohoku Univ.

Session 3 Nitrogen Fixation and Nitrogen Cycles

P-14 **Structural comparative study of nitrogenase and DPOR and LPOR implicating a scope of designing new nitrogenase (LUN)**

Qi Cheng

Biotechnology Research Institute, Chinese Academy of Agricultural Sciences; C4-101, Nitrogen Fixation Laboratory, Qi Institute

P-15 **Regulation of nitrogenase expression in the heterocystous cyanobacterium A*nabaena* sp. strain PCC 7120**

Youhei Kurio[1], Yousuke Koike[1], Yu Kanesaki[2], *Shigeki Ehira[1]

[1]Tokyo Metropolitan University, [2]Shizuoka University

P-16 **Biochemical characterization of CnfR, master transcriptional activator of genes for nitrogen fixation, in the cyanobacterium Leptolyngbya boryana, for X-ray crystallography**

*Kei Wada[1], Noriko Kaseda[1], Noriko Kamimura[1], Yumiko Motoyama[1], Haruna Takao[1], Kazuki Hashimoto[2], Rie Mishima[3], Ryoma Tsujimoto[2], Haruki Yamamoto[2,3], Yuichi Fujita[2,3]

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P-17 **Functional evaluation of nitrogenase accessory proteins under diazotrophic condition in the nonheterocystous cyanobacterium *Leptolyngbya boryana***

Aoi Nonaka[1], *Haruki Yamamoto[1,2], Narumi Kamiya[1], Hiroya Kotani[2], Hisanori Yamakawa[2], Ryoma Tsujimoto[2], and Yuichi Fujita[1,2]

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P-18 **Contributions of extracellular polysaccharides to nitrogen fixation in *Burkholderia vietnamiensis***

*Rina Shinjo, Aiko Tanaka, Daisuke Sugiura, Motohiko Kondo

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P-19 **Vesicle differentiation mutant of the nitrogen-fixing actinobacterium *Frankia casuarinae* CcI3**

*Koya Asukai[1], Shintaro Matsuyama[1], Masaki Nakajo[2], Louis S. Tisa[3], and Ken-ichi Kucho[1]

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P-20 **Can nitrogen fixing activity in rice stem be enhanced by high sugar concentration and low nitrogen fertilizer?**

*Takanori Okamoto[1,2], Rina Shinjo[1], Aiko Tanaka[1], Daisuke Sugiura[1], Michelle Anne Bunquin[2], Olivyn Angeles[2], Pauline Chivenge[2], and Motohiko Kondo[1]

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P-21 **Effect of nitrate application on hydrogen absorption of soybean rood nodules**

*Ohtake Norikuni[1], Nishikata Takumi[1], Takeda Soushi[1], Sueyoshi Kuni[1], and Ohyama Takuji[2]

[1]Niigata Univ., [2]Tokyo Univ. of Agric.

P-22 **Identification of mycorrhizal fungi common to the endangered species *Vaccinium sieboldii* and *Pinus densiflora***

*Akiyoshi Tominaga[1], Sota Yamazaki[1], Yuna Uchiyama[1], Masaki Yahata[1], Yuuki Kobayashi[2] and Masayoshi Kawaguchi[2]

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Session 4 Legume and Rhizobia Symbiosis

P-23 **Bel2-5, a type III effector of *Bradyrhizobium elkanii* hijacking soybean nodulation signaling**

*Safirah Tasa Nerves Ratu, Hien P. Nguyen, Michiko Yasuda, Shin Okazaki

United Graduate School of Agricultural Science, Tokyo University of Agriculture and Technology

P-24 **NO scavenging activities of plant hemoglobin contributes to waterlogging tolerance of root nodule symbiosis**

*Mitsutaka Fukudome[1], Eri Watanabe[1], Nahoko Uchi[1], Ken-ichi Osuki[1], Ryujiro Imaizumi[2], Toshio Aoki[2], Toshiki Uchiumi[1]

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P-25 **Transcriptomic and phenotypic alteration of the shoot by the long-distance signals controlling nodule number**

*Nao Okuma[1,2], Takashi Soyano[1,2], Masayoshi Kawaguchi[1,2]

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P-26 **Investigation of genomic diversity and nitrogen fixation capability in indigenous *Bradyrhizobium diazoefficiens* strains**

*Manabu Itakura[1], Kosuke Mitsuya[2], Takakazu Kaneko[1], Kiwamu Minamisawa[2]
[1]Kyoto Sangyo Univ., [2]Tohoku Univ.

P-27 **Investigation of tissue-to-tissue communication focusing on the auxin in *Lotus japonicus* root nodule symbiosis**

*Takashi Goto[1,2], Takashi Soyano[1,2], Meng Liu[1,2], Takuya Suzaki[3], Masayoshi Kawaguchi[1,2]
[1]National Institute for Basic Biology, [2]SOKENDAI, [3]Tsukuba Univ.

P-28 **Multiphase characterization of *Vigna riukiuensis*-associated root nodule bacteria from Ishigaki and Iriomote islands of the Okinawa archipelago**

*Md Firoz Mortuza[1,6], Norihiko Tomooka[2], Tetsuya Akatsu[3,4], Ken Naito[2], Safiullah Habibi[3,5], Salem Djedidi[6], Naoko Ohkama-Ohtsu[7], & Tadashi Yokoyama[7]
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P-29 **Dispersal of alpine legume-rhizobia symbiosis from the Arctic to Japanese alpine region**

Shimpei Hasegawa[1], Tomohiro Kawai[1], Naoto Seo[2], Hajime Ikeda[3], Shusei Sato[4], Kazufumi Yazaki[2], *Kojiro Takanashi[1]
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P-30 **Regulation of nodule development through factors involved in lateral root development in *Lotus japonicus***

*Takashi Soyano[1,2], Makoto Hayashi[3], Masayoshi Kawaguchi[1,2]
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P-31 **The RpoH-regulated gene *sufT* is involved in iron-sulfur protein metabolism and effective plant symbiosis in *Sinorhizobium meliloti***

*Hisayuki Mitsui, Kiwamu Minamisawa
Grad Schl Life Sciences, Tohoku Univ

P-32 **Exploring genetic diversity and signatures of horizontal gene transfer in nodule bacteria associated with *Lotus japonicus* in natural environments**

*Masaru Bamba[1], Seishiro Aoki[2], Tadashi Kajita[3], Hiroaki Setoguchi[4], Yasuyuki Watano[5], Shusei Sato[6], and Takashi Tsuchimatsu[5]
[1]Chiba Univ. Grad., [2]Univ. Tokyo, [3]Univ. Ryukyus, [4]Kyoto Univ., [5]Chiba Univ., [6]Tohoku Univ.

P-33 **Contribution of rhizobial *nifV* genes to symbiosis between two wide-host-range *Bradyrhizobium* strains and their various host plants**

*Shun Hashimoto[1], Jenjira Wongdee[2], Pongpan Songwattana[2], Teerana Greetatorn[2], Kohki Goto[1], Panlada Tittabutr[2], Neung Teaumroong[2] and Toshiki Uchiumi[1]
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P-34 **Analysis of cultivar difference for nodulation traits of soybeans in a field**

*Yosuke Umehara[1], Yoshikazu Shimoda[1], Masaki Hayashi[2], Akito Kaga[3], Fukuyo Tanaka[2], Yoshinari Ohwaki[2], Masao Ishimoto[3], Makoto Hayashi[4]
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P-35 Deep placement of nitrogen fertilizers and nitrification inhibitor enhances the nitrogen fixation activity and promotes seed yield of soybean

*Takuji Ohyama[1,5] , Yoshihiko Takahashi[1], Soshi Hatano[1], Norikuni Ohtake[1], Kuni Sueyoshi[1], Yoichi Fujita[2], Yoshifumi Nagumo[2], Takashi Sato[3], Sayuri Tanabata[4], Keisuke Ikebe[5], Akihiro Saito[5], Kyoko Higuchi[5]

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P-36 Effect of inoculation with nitrogen-fixing bacterium *Pseudomonas stutzeri* A1501 on maize plant growth and the microbiome indigenous to the rhizosphere

*Jin Wang, Xiubin Ke, Yongliang Yan, Shuai Feng, Wei Lu, Wei Zhang, Ming Chen, Min Lin

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P-37 Yield, biomass production, and nutrient uptake in two forage rice genotypes in response to biochar and Bacillus pumilus strain TUAT-1

*Khin Thuzar Win[1], Yoshinari Ohwaki[1], Keiki Okazaki[1], Taiichiro Ookawa[2], Tadashi Yokoyama[2]

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P-38 A survey of plant growth-promoting bacteria derived from lateral roots of sugar beet based on a community analysis

*Kazuyuki Okazaki[1], Hirohito Tsurumaru[2], Megumi Hashimoto[3], Hiroyuki Takahashi[1], Takuji Ohwada[4], Kiwamu Minamisawa[3], Seishi Ikeda[1]

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P-39 Influence of Azolla incorporation and dual cropping on CH_4 and N_2O emission from a flooded paddy soil

*Samuel Munyaka Kimani[1], Putu Oki Bimantara[2], Keitaro Tawaraya[2], Shigeto Sudo[3], and Weiguo Cheng[1,2]

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P-40 Nitrogen mineralization of winter grasses, milk vetch and foxtail as green manure in paddy soil under long-term organic farming

*Valensi Kautsar[1] , Weiguo Cheng[2], Keitaro Tawaraya[2], Kazunobu Toriyama[3], Kazuhiko Kobayashi[4]

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P-41 Incorporation of winter grasses suppressed summer weeds germination and increased inorganic nitrogen in flooding paddy soil

*Asih Indah Utami[1,2], Putu Oki Bimantara[2], Riho Umemoto[3], Keitaro Tawaraya[3], Weiguo Cheng[3]

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P-42 Studies on dynamic of C and N after land use change by lysimeter block experiment

*Putu Oki Bimantara[1], Yuka Sekikawa[2], Shouhei Itotani[2], Ren Torita[2], Toan Sy-Nguyen[3,4], Keitaro Tawaraya[2] and Weiguo Cheng[2]

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P-43 **Wood-rotting *Basidiomycetes* fungi and *Aspergillus*-derived biological amendments differently influenced radiocesium transfer to rice plants**

*Salem Djedidi, Marcela Caetano Lopes, Davilla Alessandra Da Silva Alves, Makoto Yoshida, Yohei Yamagata, Takuya Ban, Taiichiro Ookawa, Naoko Ohkama-Ohtsu, Tadashi Yokoyama
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P-44 **Effectiveness of AM fungal inoculation on Welsh onion in farmers' fields**

Takae Suzuki[1], Rieko Niwa[2,3], Toru Uno[1], Ryosuke Tajima[1], Toyoaki Ito[1,7], Shusei Sato[1], Hideki Hirakawa[4], Shigenobu Yoshida[2], Tatsuhiro Ezawa[5], *Masanori Saito[1,6]
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P-45 **Validation of biofertilizer effect on the monster rice which is a new forage rice under different fertilization or planting density conditions in Fukushima**

*Shin-ichiro Agake[1], Katsuhiro Kojima[2], Yoshinari Ohwaki[3], Taiichiro Ookawa[4], Ohkama-Ohtsu Naoko[4], Tadashi Yokoyama[4]
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P-46 **Boosting nitrogen fixation of iron-reducing bacteria in paddy soil by Fe(iii) and rice straw application**

*Takanori Ishida[1], Yoko Masuda[1], Yutaka Shiratori[2], Hideomi Itoh[3], Keishi Senoo[1]
[1]The University of Tokyo., [2]Niigata agricultural research inst., [3]AIST, Hokkaido Centre.

P-47 **Dissecting the environmental factors shaping the community structure of arbuscular mycorrhizal fungi in agricultural field across Japan**

*Rieko Niwa[1], Shusei Sato[2], Hideki Hirakawa[3], Shigenobu Yoshida[4], Takashi Sato[5], Takae Suzuki[2], Masanori Saito[2], Takumi Sato[6], Keitaro Tawaraya[6], Ayako Fukunaga[7], Yoshihiro Kobae[8], Ryo Ohtomo[8], Masaki Hayashi[4], Toshihiko Karasawa[4], Takuya Koyama[9], Katsuki Adachi[9], Yusaku Sugimura[10], Ai Kawahara[11], Hayato Mruyama[10] and Tatsuhiro Ezawa[10]
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P-48 **Nitrogen dynamics in organic rice farming paddies with different soil profiles after the lands were reconstructed**

*Riza Kurnia Sabri[1,2], Valensi Kautsar[3], Keitaro Tawaraya[2], Weiguo Cheng[2]
[1]Faculty of Agriculture, Universitas Gadjah Mada, [2]Faculty of Agriculture, Yamagata University, [3]The United Graduate School of Agricultural Sciences, Iwate University

P-49 **The effect of biochar application on soil bacterial diversity and arbuscular mycorrhizal fungal in rhizosphere of maize (*Zea mays*)**

*Bahar Sevilir[1], Kazuki Suzuki[2] , Eiko Bizen[3], Yusuf Osman Donar[4], Ali Sınağ[4],Oguz Can Turgay[1], Naoki Harada[5]
[1]Ankara University, Faculty of Agriculture, Department of Soil Science and Plant Nutrition, [2]Institute for Research Promotion, Niigata University, [3]Graduate School of Science and Technology, Niigata University, [4]Ankara University, Faculty of Science, Department of Chemistry, [5]Institute of Science and Technology, Niigata University

P-50 **Community analysis of sweet potato-associated bacteria for surveying beneficial diazotrophs as a candidate of biofertilizer**

*Seishi Ikeda[1], Yuki Kobayashi[2], Hirohito Tsurumaru[3], Kazuyuki Okazaki[1], Masayuki Hirafuji[4], and Akira Kobayasi[2]

[1]Hokkaido Agricultural Research Center, NARO, [2]Kyushu Okinawa Agricultural Research Center, [3]Faculty of Agriculture, Kagoshima University, [4]Graduate School of Agricultural and Life Sciences, The University of Tokyo

P-51 **Synergistic effect of *Mitsuaria* sp. TWR114 and *Ralstonia* sp. TCR112 on enhanced biocontrol of tomato bacterial wilt**

*Malek Marian[1], Akio Morita[2], Hiroyuki Koyama[1], Haruhisa Suga[3], Masafumi Shimizu[1]

[1]Faculty of Applied Biological Sciences, Gifu University; [2]Faculty of Agriculture, Shizuoka University; [3]Life Science Research Center, Gifu University

P-52 **Effectiveness of nitrogen-fixing bacteria, *Klebsiell apneumoniae* HKN1 and phosphate-solubilizing bacteria, *Pantoea agglomerans* HP2 on the growth and the yield of OM5451 rice cultivar in the greenhouse and the field at Vung Liem district, Vinh Long province**

*Nguyen Huu Hiep and Vo thi Thu Tuyen

Biotechnology Research and Development Institute, Cantho University

P-53 **Organelle dynamics and intercommunication during plant-microbe interaction**

Eunsook Park[1,2], Joo Hyun Lee[1,2], Soeui Lee[1,2], Sejun Kim[1,2], Seungmee Jung[1,2], Jongchan Woo[1,2], Savithrama P. Dinesh-Kumar[3], *Doil Choi[1,2]

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P-54 **Identification of 1-aminocyclopropane-1-carboxylic acid (ACC)-deaminase producing endophytic bacteria from local agricultural plantation based on 16S ribosomal RNA gene as genetic marker**

*Rumella Simarmata[1], Ngadiman[2], Muhammad Saifur Rohman[2], Partomuan Simanjuntak[1,3], Harmastini Sukiman[1]

[1]Research Center of Biotechnology, Indonesian Institute of Science, [2]Gadjah Mada University, [3]Pancasila University

P-55 **Regulation of *Paenibacillus durus* ATCC 35681 *nifB1* and *nifH1* genes**

*Mardani Abdul Halim[1], Choo Quok-Cheong[2], Nazalan Najimudin[1]

[1]School of Biological Sciences, Universiti Sains Malaysia, [2]Department of Biological Sciences, Universiti Tunku Abdul Rahman, Jalan Universiti Bandar Barat

P-56 **Site-directed mutagenesis of ParA protein in *Azorhizobium caulinodans* ORS571: effect on cell cycle progression and stem-nodule development**

*Yu-Sheng Wang[1,2], Kung-Ta Lee[1], Chi-Te Liu[2]

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P-57 **Some bradyrhizobial strains are deleterious for a certain soybean cultivar**

*Junichi Ikeda

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