Program of the 14th annual meeting

Special lecture

Symbiosis: A continuum from commensalism to parasitism
Ann M. Hirsch, Professor,
Dept. Molecular, Cell and Developmental Biology, UCLA

Oral presentations

1. Root hair deformation and F-actin remodeling in response to Nod Factor
*Makoto Yoshikawa1, Shingo Takagi2, Yoshikatsu Murooka1, Masayoshi Kawaguchi3 and Makoto Hayashi1 (1Osaka Univ., 2 Osaka Univ., 3Univ. Tokyo)

2. Isolation and characterization of a *CLAVATA2*-like gene in *Lotus japonicus*
*Naoto Sato1, Yoko Ohtsubo1, Tomomi Nakagawa1, Guo-Jiang Wu1,3, Shusei Sato2, Satoshi Tabata2, Toshiyuki Nagata1, Masayoshi Kawaguchi1,3 (1Dept. Biol. Sci., Grad. Scl. Sci., Univ. Tokyo, 2Kazusa DNA Inst., 3CREST/JST)

3. *Crinkle* is essential for tip growth
Myra Tansengco1, Taihei Hio1, Kouji Yano1, Yoshikatsu Murooka1, Masayoshi Kawaguchi2 and *Makoto Hayashi1 (1Osaka Univ., 2Univ. Tokyo)

4. Gene expression patterns in natural and early senescent root nodules of *Lotus japonicus*
*Mari Banba1, Svetlana Chechetka1, Yasuhiro Ooki1, Norio Suganuma2, Hiroshi Kouchi3, Shingo Hata1 (1Grad. Scl. Biost., Kyoto Univ., 2Dept. Life Sci., Aichi Univ. Edc.,3Natl. Inst. Agrobiol. Sci.)

5. Phenotypic characterization of a novel hypernodulation mutant of *Lotus japonicus* isolated by ion beam irradiation
*Erika Oka-Kira1,6, Kumiko Tateno2, Kinichiro Miura2, Tatsuya Haga2, Masaki Hayashi3, Kyuya Harada3, Naoya Shikazono4, Atsushi Tanaka4, Yuichiro Watanabe5, Izumi Fukuhara1,6, Asuka kuwabara1, Toshiyuki Nagata1, Masayoshi Kawaguchi1,6 (1Grad. Scl. Sci., Univ. Tokyo, 2Grad. Schl. Sci., Gakushuin Univ., 3Fac. Horticul., Chiba Univ., 4JAERI, 5 Grad. Schl. Arts & Sci., Univ. Tokyo, 6 CREST/JST)

6. Involvement of nitric oxide in the inhibition of nitrogen fixation by nitrate in *Lotus* root nodules
*Kazuhisa Kato, Koki Kanahama, Yoshinori Kanayama (Grad. Schl. Agr. Sci., Tohoku Univ.)

7. Jasmonic acid is involved in infection thread development
*Takaki Maekawa1, Hiroshi Kouchi2, Erika Asamizu3, Satoshi Tabata3, Yoshikatsu Murooka1 and Makoto Hayashi1 (1Osaka Univ., 2NIAS, 3KDRI)

8. Application of methyl jasomonate to shoots represses nodule development in *Lotus japonicus*
*Tomomi Nakagawa1, Hiroshi Kouchi2, Masayoshi Kawaguchi1 (1Univ. Tokyo, 2NIAS)

9. Phenotypic and genomic comparison of rhizobial isolates from *Lotus* species
*Kazuhiko Saeki1, Takanori Abe1, Anvita Kumar1, Hirofumi Omori1, Hiroyuki Sawada2, Toshiki Uchiumi3, Akihiro Suzuki3, Yuko Kumada3 and Mikiko Abe3 (1Dept. Biol., Grad. Schl. Sci, Osaka Univ. 2Natl. Inst. Agro- Env. Sci. 3Dept. Chem. BioSci., Fac. Sci., Kagoshima Univ.)

10. A large scale analysis of protein-protein interactions in *Mesorhizobium loti*
*Shusei Sato, Yasukazu Nakamura, Satoshi Tabata (Kazusa DNA Res. Inst.)

11. Screening for novel symbiotic genes in *Mesorhizobium loti* ― analysis of the phosphate transporter gene
*Yasuyuki Kawaharada, Hisayuki Mitsui, Kiwamu Minamisawa (Grad. Schl. Life Sci., Tohoku Univ)

12. Bacteroid differentiation in *Shinorhizobium-Medicago* symbiosis
*Toshiki Uchiumi1, Peter Mergaert2, Anne- Elisabeth Mausset2, Adam Kondorosi2, Eva Kondorosi2 (1Dept. Chem. BioSci., Kagoshima Univ. 2Institut des Sciences Vegetales, France)

13. Identification of *Lotus japonicus* mutants defective for infection by *Mesorhizobium loti*
*Fabien Lombardo1, Jillian Perry2, Martin Parniske2 and J. Allan Downie1 (1John Innes Centre, 2Sainsbury Lab.)

14. Screening of *Ralstonia solanacearu*m strains for their virulence to *Lotus japonicus* and cytological analysis of their interaction
*Hisatoshi Kaku1, Hiromichi Ishihara2, Takashi Fujikawa2, Shinji Tsuyumu2, Hiroshi Kouchi1 (1NIAS, 2Shizuoka Univ.)

15. A *Medicago truncatula-Mycosphaerella pinodes* interaction, a new model pathosystem for genetic and molecular dissection of susceptibility to fungal pathogen
*Masaya Hirose, Satoko Ikeda, Jun-ichi Morikawa, Kazumi Matsuo, Natasha Koya, Eriko Kawakami, Chikako Nagai, Chiharu Tani, Taichi Hata, Aya Maeda, Miyuki Yoshihiro, Yasuhiro Tanaka, Yoshishige Inagaki, Yuki Ichinose, Kazuhiro Toyoda, Tomonori Shiraishi (Plant Pathol. Lab., Okayama Univ.)

16. Enhanced disease susceptibility phenotype in apyrase or nucleoside diphosphate kinase-silenced *Nicotiana benthamiana*
Chikako Nagai1, Hirofumi Yoshioka2, Yasuhiro Tanaka1, Yoshishige Inagaki1, Yuki Ichinose1, *Kazuhiro Toyoda1, Tomonori Shiraishi1 (1Plant Pathol. Lab., Okayama Univ., 2Lab. Plant Pathol., Nagoya Univ.)

17. Defence reaction of potato: signal transduction in hypersensitive cell death by protein kinases in the cell membranes
*Naotaka Furuichi1, Yoshihiko Ushihara3, Tomoo Okuta2 (1Centr. Transdisciplinary Res., 2Grad. Schl. Sci. & Tech., 3Fac. Agr., Niigata University)

18. Common system regulating both nodulation and arbuscular mycorrhiza formation in soybean
*Kazunori Sakamoto1, Maki Tsukui2 (1Fac. Hort., Chiba Univ., 2Grad. Schl. Sci. Tech., Chiba Univ.)

19. Homeotic development between infection thread and arbuscule revealed by molecular genetic analysis
*Kouji Yano1, Kate Vickers2, Shusei Sato3, Erika Asamizu3, Satoshi Tabata3, Yoshikatsu Murooka1, Masayoshi Kawaguchi4, Martin Parniske2, Makoto Hayashi1 (1Osaka Univ., 2Sainsbury Lab., 3KDRI, 4Univ. Tokyo)

20. Screening of mycorrhizal-symbiotic mutant of *Lotus japonicus*
*Ryo Ohtomo1,4, Tomoko Kojima1,4, Shotaro Ando1,4, Yosuke Umehara2,4, Hiroshi Kouchi2,4, Masayoshi Kawaguchi3,4 (1NILGS, 2NIAS, 3Univ. Tokyo, 4CREST)

21. Two putative ion channels involved in the common pathway show plastid localization
*Naoya Takeda1, Haruko Imaizumi-Anraku2, Myriam Charpentier3, Shusei Sato4, Erika Asamizu4, Satoshi Tabata4, Yoshikatsu Murooka1, Masayoshi Kawaguchi5, Shinji Kawasaki2, Martin Parniske3 and Makoto Hayashi1 (1Osaka Univ., 2NIAS, 3Sainsbury Lab., 4KDRI, 5Univ. Tokyo)

22. Transcriptional changes of *Lotus japonicus* during development of arbuscular mycorrhizal fungi
*Y. Deguchi1, Y. Shimoda2, S. A. Chechetka1, M. Banba1, Y. Ooki1, A. Suzuki2, T. Uchiumi2, S. Higashi2, M. Abe2, H. Kouchi3, K. Izui1 and S.Hata1 (1Grad. Schl. Biost., Kyoto Univ., 2Dept. Chem. BioSci., Kagoshima Univ. 3NIAS)

23. Study on mechanism for a transient down-regulation of transcriptional level in both soybean micro-callus cells and root cells induced by Nod factor of *B. japonicum* USDA 110
*Tadashi Yokoyama1, Yuusuke Morita1, Tomoko Tahara1, Hiroshi Kouchi2, Yasuhiro Arima1 (1Tokyo Univ. Agr. & Tech., 2NIAS)

24. Rhizobial symbiotic plasmid integrated into *Agrobacterium* chromosome
*Hiroki Nakatsukasa1, Takuhiro Fukumori1, Toshiki Uchiumi2, Akihiro Suzuki2, Shiro Higashi2, Mikiko Abe2 (1Grad. Schl. Sci & Eng., Kagoshima Univ., 2Dept. Chem. & BioSci., Fac. Sci., Kagoshima Univ.)

25. An evolutionary study of the mutualism of legumes and rhizobia
*Seisihro Aoki, Motomi Ito (Grad. Schl. Arts & Sci., Univ. Tokyo)

26. Bacterial endophytes gave rise to resistance for pests and disease to rice
*Tsuyoshi Isawa1, Naoya Hiruma1, Takahiro Imada1, Madoka Kon1, Shinji Kouno1, Satoshi Shinozaki1, Kiwamu Minamisawa2, Tadashi Sato2 (1Mayekawa MFG. CO., LTD. , 2Grad. Schl. Life Sci., Tohoku Univ.)

27. Detection of *nifH* gene in sugarcane (*Saccharum officinarum* L.)
*Shotaro Ando1, Masaru Terashita2, Masahiro Goto2, Yusuke Hachisuka2, Hiroaki Hayashi2, Tadakatsu Yoneyama2 (1Natl. Inst. Livestock & Grassland Sci., 2Dept. Appl. Biol. Chem., Univ. Tokyo)

Poster presentations

28. Strain comparison of *Bradyrhizobium japonicum* genomes by macroarray
*Kiwamu Minamisawa1, Manabu Itakura1, Sachiko Masuda1, Kazuhiko Saeki2, Hirofumi Omori2, Tadashi Yokoyama3, Takakazu Kaneko4, Satoshi Tabata4, Takuji Ohwada5, Shigeyuki Tajima6, Toshiki Uchiumi7 (1Grad. Schl. Life Sci., Tohoku Univ., 2Dept. Biol., Grad. Schl. Sci., Osaka Univ., 3Tokyo Univ. Agr. Tech., 4Kazusa DNA Res., Inst., 5Dept. Agr. Life Sci., Obihiro Univ. Agr. Vet. Med., 6Dept. Life Sci., Kagawa Univ., 7Dept. of Chem. & BioSci., Fac. Sci., Kagoshima Univ.)

29. Global gene expression of *Bradyrhizobium japonicum* bacteroids by macroarray analysis
*Yoshino Hara1, Manabu Itakura1, Hisayuki Mitsui1, Kazuhiko Saeki2, Hirofumi Omori2, Tadashi Yokoyama3, Toshiki Uchiumi4, Takuji Ohwada5, Takakazu Kaneko6, Satoshi Tabata6, Shigeyuki Tajima7, Kiwamu Minamisawa1 (1Grad. Schl. Life Sci., Tohoku Univ., 2Dept. Biol., Grad. Schl.

Sci., Osaka Univ., 3Tokyo Univ. Agr. & Tech., 4Dept. Chem. & BioSci., Fac. Sci., Kagoshima Univ., 5Dept. Agr. & Life Sci., Obihiro Univ. Agr. & Vet. Med., 6Kazusa DNA Res. Inst., 7Dept. Life Sci., Kagawa Univ.)

30. Involvement of putative ABC transporter in nodule maturation of *Bradyrhizobium japonicum* USDA110
*Shuhei Tsukada, Yukihiro Maru, Toshihiro Aono, Hiroshi Oyaizu (Biotech. Res. Cent., Univ. Tokyo)

31. Cloning of *orf 1* gene in *Bradyrhizobium japonicum* Is-1 and its complementation experiment
*Natsuko Kawanami1, Hirohito Tsurumaru1, Takeo Yamakawa2, Masao Sakai2, Motoki Ikeda2 (1Grad. Schl. Biores. & Bioenviron. Sci., Kyushu Univ., 2 Fac. Agr., Kyushu Univ.)

32. Effects of *Mesorhizobium loti* ACC deaminase on competitive nodulation
*Noriyuki Nukui1, Minamisawa Kiwamu2, Toshio Aoki1 and Shin-ichi Ayabe1. (1Dept. Appl. Biol. Sci., Nihon Univ., 2Grad. Schl. Life Sci., Tohoku Univ.)

33. Construction and characterization of *Mesorhizobium loti argF* homologue, *mlr5647*, knockout mutants
*Elina Mishima1, Haruko Imaizumi-Anraku2, Masayoshi Kawaguchi1, and Kazuhiko Saeki1 (1Grad. Sc. Sci, Osaka Univ., 2NIAS, 3Grad. Sc. Sci, Univ. Tokyo)

34. Study of *nod* gene expression in *Mesorhiozobium loti* under different nutrient conditions
*Katsuhiro Kojima1, Tadashi Yokoyama1, Manabu Itakura2, Kiwamu Minamisawa2, Yasuhiro Arima1 (1Tokyo Univ. Agr. & Tech., 2Grad. Schl. Life Sci., Tohoku Univ.)

35. *Sinorhizobium meliloti* RpoH1 is required for effective nitrogen-fixing symbiosis with alfalfa
*Hisayuki Mitsui, Kiwamu Minamisawa (Grad. Schl. Life Sci., Tohoku Univ.)

36. Expression of *fixN* gene in *mcp* deleted mutants of *Sinorhizobium meliloti*
*Yui Kitayama1, Satoshi Kobayashi1, Shintarou Hirase1, Akira Tabuchi1, Birgit Scharf2, Ruediger Schmitt2 (1Dept. Biosci. & Biotech., Fac. Agr., Shinshu Univ., 2Univ. Regensburg, Lehrstuhl fuer Genetik)

37. Analysis of gene loci associated with nodule maturation in *Azorhizobium caulinodans* ORS571
*Yukihiro Maru, Shuhei Tsukada, Taichiro Iki, Toshihiro Aono, Hiroshi Oyaizu (Biotech. Res. Cent., Univ. Tokyo)

38. Functional analysis and transfer to non-producing rhizobia of rhizobitoxine biosynthetic genes
*Masayuki Sugawara1, Shin Okazaki1, Satoko Nonaka2, Hiroshi Ezura2, Kiwamu Minamisawa 1 (1Grad. Schl. Life Sci., Tohoku Univ., 2Grad. Schl. Life & Environ. Sci., Tsukuba Univ.)

39. Survey of physiological role of bacteroid specific proteins in *Bradyrhizobium japonicum* USDA110
*Rie Hamaguchi1, Le Thi Phuong Hoa2, Yuto Obama2, Mika Nomura2, Kiwamu Minamisawa3, Manabu Itakura3, Shigeyuki Tajima2 (1Grad. Schl. Agr., Kagawa Univ., 2Fac. Agr., Kagawa Univ., 3Grad. Schl. Life Sci., Tohoku Univ.)

40. Analysis of root exudate from alfalfa that attracts *Sinorhizobium meliloti*
Satoshi Kobayashi1, Yui Kitayama1, *Akira Tabuchi1, Birgit Scharf2, Ruediger Schmitt2 (1Dept of Biosci. & Biotech., Fac. Agr., Shinshu Univ., 2Univ. Regensburg, Lehrstuhl fuer Genetik)

41. The ecology of *Azorhizobium caulinodans* ORS571 in the rhizosphere of a non-host plant, *Arabidopsis thaliana*
*Taichiro Iki, Toshihiro Aono, Hiroshi Oyaizu (Grad. Schl. Agr. & Life Sci., Univ. Tokyo)

42. Host range and relatedness based on 16S rDNA of *Frankia* strains isolated from the root nodules of actinorhizal plants
*Yuki Nagashima, Chiharu Tani, Keiji Kitani, Mikihiro Yamamoto, and Hideo Sasakawa (Fac. Agr., Okayama Univ.)

43. Characterization of a novel Fix- symbiotic mutant (*Ljsym105*) in *Lotus japonicus*
*HOSSAIN Md. Shakhawat, Yosuke Umehara, Hiroshi Kouchi (NIAS, JST-CREST)

44. Characterization and positional cloning of *Ljsym3*
*Norihito Kanamori1,2, Lene H. Madsen1, Simona Radutoiu1, Mirela Frantescu1, Hiroki Miwa3, Allan Downie3, Shusei Sato4, Satoshi Tabata4, Niels Sandal1 and Jens Stougaard1 (1Univ. Aarhus, 2Natl. Food Res.Inst., 3John Innes Centre, 4Kazusa DNA Res. Inst.)

45. Phenotypic characterization of nodulation and mycorrhizal mutant *Ljsym85* in *Lotus japonicus*
*Katsuharu Saito1,2, Makoto Yoshikawa3, Makoto Hayashi2,3, Yoshikatsu Murooka3, Haruko Imaizumi-Anraku4, Yosuke Umehara4, Hiroshi Kouchi4, Masayoshi Kawaguchi1,2 (1Grad. Schl. Sci., Univ. Tokyo, 2CREST, JST, 3Grad. Schl. Eng., Osaka Univ., 4NIAS)

46. Hist-/Fix- mutants derived from regenerated plants in *Lotus japonicus*
*Yosuke Umehara, Md. Shakhawat Hossain, Wenli Chen, Hiroshi Kouchi (NIAS, JST/CREST)

47. Expression of *Lotus japonicus* nicotianamine synthase gene, *LjNAS2*, is up-regulated in nodules
*Tsuneo Hakoyama1, Hiroko Watanabe1, Hiroshi Kouchi2, Norio Suganuma1 (1Aichi Univ. Edu., 2NIAS)

48. Expression and localization of nodule specific proteinase
*Makoto Fujie1, Ryo Kajihara1, Takahisa Fukuda1, Hiroki Maeno1, Erika Asamizu2, Satoshi Tabata2, Takashi Yamada1 (1Grad. Schl. A. D. S. M, Hiroshima Univ., 2Kazusa DNA Res. Inst.)

49. RNA silencing of ENOD40s in *Lotus japonicus*
*Hiroshi Kouchi, Hirotaka Kumagai (NIAS)

50. Preparation of *Lotus japonicus* transformed by soybean lectin genes
*Takako Ohzono1, Toshiki Uchiumi2, Mikiko Abe2, Shiro Higashi2, Ann M. Hirsch3, Akihiro Suzuki2 (1Grad. Sc. Sci. & Eng., Kagoshima Univ.,2Dept. Chem. & BioSci., Kagoshima Univ., 3Dept. MCDB, UCLA)

51. Pathogen-inducible NO synthase (*iNOS*) and hemoglobin (*Hb*) genes expression of *Lotus japonicus* with *Rhizobium* inoculation
*Maki Nagata1, Yoshikazu Shimoda1, Toshiki Uchiumi2, Akihiro Suzuki2, Mikiko Abe2 (1Grad. Schl. Sci. & Eng., Kagoshima Univ., 2Dept. Chem. & BioSci., Kagoshima Univ.)

52. Involvement of hemoglobin and nitric oxide on stress and early stage of legume-*Rhizobium* symbiosis
*Yoshikazu Shimoda1, Maki Nagata1, Akihiro Suzuki2, Mikiko Abe2, Shusei Sato3, Tomohiko Kato3, Satoshi Tabata3, Shiro Higashi2, Toshiki Uchiumi2 (1Grad. Schl. Sci. & Eng., Kagoshima Univ., 2Dept. Chem. & BioSci., Kagoshima Univ., 3Kazusa DNA Res. Inst.)

53. Characterization of novel nodule-specific gene encoding a RING-finger protein
*Kenshiro Shimomura1, Hiroshi Kouchi2, Shigeyuki Tajima3 (1The United Grad. Schl. Agr. Sci., Ehime Univ., 2NIAS, 3Fac. Agr. Kagawa Univ.)

54. *IGN1* gene is required for maintenance of functional symbiosis with *Rhizobium*
*Hirotaka Kumagai1, Yosuke Umehara1, Shusei Sato2, Takakazu Kaneko2, Satoshi Tabata2, Hiroshi Kouchi1 (1NIAS, 2Kazusa DNA Res. Inst.)

55. Overexpression of *TrEnodDR*1 gene in *Lotus japonicus* regulates nodule number through the control of abscisic acid concentration
*Mitsumi Akune1, Kenji Yamashita2, Mikiko Abe2, Toshiki Uchiumi2, Shiro Higashi2, Akihiro Suzuki2 (1Grad. Schl. Sci. & Eng., Kagoshima Univ., 2Dept. Chem. & BioSci., Fac. Sci., Kagoshima Univ.)

56. Performance analysis on nodule PEPC enzyme that used transformant *Lotus japonicus*
*Miho Fujii1, Mika Nomura2, Singo Hata3, Sigeyuki Tajima2 (1Grad. Schl. Agr., Kagawa Univ. 2Fac. Agr. Kagawa Univ., 3Grad. Schl. Biost., Kyoto Univ.)

57. Systemic regulation of root nodule number by abscisic acid
*Kenichi Osuki1, Mitsumi Akune1, Yoshihiro Imagama1,Hisatoshi Hara2, Toshiki Uchiumi2, Mikiko Abe2, Shiro Higashi2, Akihiro Suzuki2 (1Grad. Schl. Sci. & Eng., Kagoshima Univ.,2 Dept. Chem. & BioSci., Kagoshima Univ.)

58. Effect of D-Psicose application on a model symbiotic system (*Lotus japonicus* / *Methorhizobium loti*)
*Naoya Kuzuhara1, Toshie Miyoshi1, Mika Nomura2, Ken Izumori2, Shigeyuki Tajima2 (1Grad. Schl. Agr. Kagawa Univ., 2Fac. Agr. Kagawa Univ.)

59. Vascular bundle differentiation at the early stage of nodule development of *Lotus japonicus*
Shigemasa Sakata1, Norihito Kanamori2, Akihiro Suzuki3, Toshiki Uchiumi3, Shiro Higashi3, *Mikiko Abe3 (1Dept. Chem. & BioSci., Grad. Schl. Sci. & Eng., Kagoshima Univ., 2Food Eng. Div., Natl. Food Inst., 3Dept. Chem. & BioSci., Fac. Sci., Kagoshima Univ.)

60. Characterization of a *Lotus japonicus* phosphate transporter (LjPT4) that is specific for arbuscular mycorrhizal symbiosis
*Daisuke Maeda, Kanae Ashida, Keita Iguchi, Yuichi Deguchi, Katsura Izui, Shingo Hata (Grad. Schl. Biost., Kyoto Univ.)

61. Tolerance to fusarium wilt and anthracnose in mycorrhizal strawberry plants and the changes in free amino acid content through symbiosis
*Yoichi Matsubara1, Itsuka Hirano1, Tokuhisa Ishigaki1, Daisuke Sassa1, Kaneyuki Koshikawa2, Yoshinori Sawai3 (1Fac. Agr. Gifu Univ., 2Gifu Pref. Res. Inst. Agric. Sci., 3Gifu Pref. Res. Inst. Ind. Pro.)

62. Glycosylation of flagellin protein and flagellin-mediated interactions between plants and *Pseudomonas syringae*
Kasumi Takeuchi1,2, Fumiko Taguchi1, Ryuuji Miki1, Chihiro Yasuda1, Katsuyoshi Murata2, Etsuko Katoh2, Shizue Katoh2, Hanae Kaku2, Yoshishige Inagaki1, Kazuhiro Toyoda1, Tomonori Shiraishi1, *Yuki Ichinose1 (1Fac. Agr., Okayama Univ., 2NIAS)

63. Induced inaccessibility in barley cells exposed to extracellular material released by non-pathogenic powdery mildew conidia
*Keiko Fujita1, Tomoko Suzuki1, Carver T. L. W.2, Thomas B.2, Sarah Gurr3, Kazuhiro Toyoda1,

Tomonori Shiraishi1, Hitoshi Kunoh4 (1Okayama Univ., 2IGER UK, 3Oxford Univ. UK, 4Mie Univ.)

64. The effect of KS1 product, that was prepared by symbiotic fertilization, against crown gall tumors
*Michiko Sanai, Makoto Fujie, Shoji Usami and Takashi Yamada (Dep. Mol. Biotech., AdSM, Hiroshima University)

65. Effect of nitrogen-fixing bacteria *Klebsiella oxytoca* on the growth of rice
*Makiko Sudo1, Hiroshi Kuroiwa1, Hiroshi Masuda1, Hidetoshi Okuyama2, Isao Yumoto3, Naoki Morita3, Takeo Yamakawa4, Masao Sakai4, Takuji Ohwada1 (1Dept. Biores. Sci., Obihiro Univ. Agr. & Vet. Med., 2Grad. Schl. Environ. Earth Sci., Hokkaido Univ., 3Inst. Biol. Res. & Func., Natl. Inst. Adv. Indus. Sci. & Tech., 4Fac. Agr., Kyushu Univ.)

66. *nifH* gene distribution and expression in rhizosphere - analyzed by PCR-DGGE method
*Katsumasa Suzuki 1, Takuro Shinano 2, Jun Wasaki 2, Atsuya Sato 2, Mitsuru Osaki 1 (1Grad. Schl. Agr., Hokkaido Univ., 2Creative Res. Init. "SOUSEI" (CRIS), Hokkaido Univ.)

67. Isolation and classification of the nitrogen-fixing endophytic bacteria from sweet potato and sugarcane plants
*Tasuiku Shimizu1, Yuichi Saeki1, Njoloma Joyce1, Constancio A. ASIS, Jr2, Katsuki Adachi3, Yasuhiro Nakanishi4, Shoichiro Akao1 (1Univ. Miyazaki, 2Philippine Rice Res. Inst. (PhilRice), 3Dept. Upland Farming Res., Natl. Agr. Res. Centr. Kyushu Okinawa Region, 4Miyako Subtropical Farm, Tokyo Univ. Agr.)

68. Estimation of the amount of nitrogen fixed in sugarcane by 15N dilution technique
*Tomohiro Nishiguchi, Tasuku Shimisu1, Joyce Njoloma1, Moriya Ota2, Yuichi Saeki1, Shoichirou Akao1 (1Univ. Miyazaki, 2Okinawa Prefec. Agr. Exp. St.)

69. cancellation

70. Endophytic *nifH* gene diversity in sweet potato
*Yoshinari Oowaki1, Hiromiki Yamakawa1, Fukuyo Tanaka1, Junko Terakado2, Tadakatsu Yoneyama3, Shinsuke Fujiwara1 (1Natl. Agr. Res. Centr., 2JSPS, 3Dept. Appl. Biol. Chem., Univ. Tokyo)

71. Investigation of endophytic diazotrophs from rice
*Takamitsu Kishimoto, Rie Kugimiya, Haruhiko Masaki, Makoto Hidaka (Dept. Biotech., Grad. Schl. Agr. Life Sci., Univ. Tokyo)

72. Phenotypic changes were occurred to rice by bacterial endophytes
*Satoshi Shinozaki1, Naoya Hiruma1, Takahiro Imada1, Madoka Kon1, Shinji Kouno1, Tsuyoshi Isawa1, Kiwamu Minamisawa2, Tadashi Sato2 (1Mayekawa MFG. CO., LTD. ,2Grad. Schl. Life Sci., Tohoku Univ.)

73. Diversity of fungal endophyte lives within oats roots that culivated on different fertilized field
*Sagiri Teshima, Kazunori Sakamoto (Chiba Univ.)

74. Cloning and expression of β-1,3-glucanase genes in *Sesbania rostrata*
*Misako Kinoshita, Toshihiro Aono, Yukihiro Maru, Hiroshi Oyaizu (Dept. Global Agri. Sci., U.Tokyo)

75. Expression of hemoglobin genes in actinorhizal plant *Alnus firma*

*Fuyuko Sasakura1, Katsumi Takenouchi1, Toshiki Uchiumi2, Akihiro Suzuki2, Shiro Higashi2, Mikiko Abe2 (1Grad. Schl. Sci. & Eng., Kagoshima Univ. 2Dept. Chem. & BioSci., Kagoshima Univ.)

76. Nitrogen dynamics in tropical leguminous plant, Yam Bean (*Pachyrhizus erosus* (L.) Urban)
*Megumi Ogata1, Shiro Higashi2, Toshiki Uchiumi2, Akihiro Suzuki2, Mikiko Abe2 (1Grad. Schl. Sci. & Eng., Kagoshima Univ., 2Dept. Chem. & BioSci., Kagoshima Univ.)

77. Involvement of polyamine in brassinolide-directed nodule regulation in soybean plant
*Junko Terakado1,2, Yoshinari Ohwaki1, Tadakatsu Yoneyama3, Shinsuke Fujihara1 (1NARC, 2JSPS, 3Univ. Tokyo)