**The 19th Annual Meeting of Japanese Society of Plant Microbe Interactions**

**Program of Events**
**8 September, Tuesday**

12:30 Registration

13:30 to 15:45 Opening and Session I

1 *Lotus japonicus* FEN1 protein play an essential role in successful symbiotic nitrogen fixation
*Tsuneo Hakoyama[1,2], Kaori Niimi[2], Hirokazu Watanabe[2], Ryohei Tabata[2], Junichi Matsubara[2], Shusei Sato[3], Yasukazu Nakamura[3], Satoshi Tabata[3], Li Jichun[4], Tsuyoshi Matsumoto[4], Kazuyuki Tatsumi[4], Mika Nomura[5], Shigeyuki Tajima[5], Masumi Ishizaka[6], Koji Yano[1], Haruko Imaizumi-Anraku[1], Masayoshi Kawaguchi[7], Hiroshi Kouchi[1], Norio Suganuma[2]
[1]NIAS, [2]Aichi Univ. Edu., [3]Kazusa DNA Res. Inst., [4]Nagoya Univ., [5]Kagawa Univ., [6]NIAES, [7]NIBB

2 Functional complementation analysis of CASTOR, POLLUX and DMI1
*Han Lu[1], Muthusubramanian Venkateshwaran[2], Yoshikazu Shimoda[1], Marisa S. Otegui[2], Jean-Michel Ane[2], Haruko Imaizumi-Anraku[1]
[1]NIAS, [2]Department of Agronomy

3 Mycorrhiza-inducible mineral nutrient transporters of soybean
*Yosuke Tamura[1], Yoshihiro Kobae[1], Mari Banba[1], Shoko Takai[2], Shingo Hata[1]
[1]Grad. Sch. Bioagricult. Sci., Nagoya Univ., [2]Sch. Agriculture, Nagoya Univ.

4 Innate immunity in legume-rhizobium symbiosis; antibiotic peptides and terminal differentiation of microsymbiont
Willem Van de Velde[1], Grigor Zehirov[2], Agnes Szatmari[2,3], Monika Debreczeny[4], Hironobu Ishihara[2], Attila Farkas[4], Kata Mikulass[4], Andrea Nagy[4], Hilda Tiricz[4], Beatrice Jeunemaître [1], Benoit Alunni[1], Mickael Bourge[1], Ken-ichi Kucho[2], Mikiko Abe[2], Shiro Higashi[2], Attila Kereszt[4], Gergely Maroti[4], *Toshiki Uchiumi[2], Eva Kondorosi[1,4], Peter Mergaert[1]
[1]Inst. Sci. Veget. France, [2]Grad. Sch. Sci. Eng. Kagoshima Univ., [3]Plant Protec. Inst. Hungary, [4]Inst. Plant. Genom. Human Biotech. Bioener. Hungary

5 NifA protein is required for maximal expression of denitrification genes in *Bradyrhizobium japonicum*
Emilio Bueno[1], Socorro Mesa[2], Eulogio J. Bedmar[1], Maria J. Delgado[1]
[1]EEZ-CSIC, Spain, [2]Inst. Microbiol., ETH, Switzerland.

6 The effect of nitrate on nodule and root growth of soybean under light and dark conditions
*Akinori Saito, Norikuni Ohtake, Kuni Sueyoshi, Takuji Ohyama
Niigata Univ.

7 Regulation of nodule formation and the growth of soybean by nitrogen and photosynthetic product
*Taichi Kato, Kuni Sueyoshi, Norikuni Ohtake, Takuji Ohyama
Niigata Univ.

8 Estimation of nitrogen fixation activity and diagnosis of mineral nutrition by xylem sap of soybean
*Sakazume D[1], Nagumo Y[2], Ohtake N[3], Sueyosi K[3], Takahashi Y[3], Ohyama T[3].
[1]Grad. Sch. Sci. & Technol., Niigata Univ., [2]Niigata Agri. Res. Inst., Crop Res. Center, [3]Fac. Agri., Niigata Univ.

9 The effects of the deep placement of fertilizer lime nitrogen on the yield and quality of the soybean.
Tanaka K[1], Kaushal T[1], Nagumo Y[2], Takahashi Y[3], Ohtake K[3], Sueyoshi K[3], OhyamaT[3].
[1]Grad. Sch. Sci. & Technol., Niigata Univ., [2]Niigata Agri. Res. Inst., Crop Res. Center, [3]Fac. Agri., Niigata Univ.

Break

16:05 to 17:35 Session II

10 Activation mechanisms of calcium calmodulin-dependent protein kinase (CCaMK) during root nodule symbiosis
*Yoshikazu Shimoda, Han Lu, Makoto Hayashi, Haruko Imaizumi-Anraku
NIAS

11 Analysis of AM and RNS signaling pathway by Gain of function CCaMK.
*Naoya Takeda[1], Takaki Maekawa[2], Makoto Hayashi[1]
[1]NIAS, [2]Max Planck Institute

12 Characteristics of Lotus japonicus hypernodulation mutants rdh1 and har1
vAzusa Nakajima, Yanxu Wang, Yong Yi Li, Keisuke Yokota, Toshihiro Aono, Hiroshi Oyaizu
Biotechnology Research Center, University of Tokyo

13 Community shifts of Alpha- and Gammaproteobacteria in soybean responding to different nodulation phenotypes and N levels
Seishi Ikeda[1], Takashi Okubo[1], Takakazu Kaneko[2], Shoko Inaba[1], Tomiya Maekawa[3], Shima Eda[1], Shusei Sato[2], Satoshi Tabata[2], Hisayuki Mitsui[1], *Kiwamu Minamisawa[1]
[1]Graduate School of Life Sciences, Tohoku Univ., [2]Kazusa DNA Res. Inst., [3]Graduate School of Agriculture, Tohoku Univ.

14 *in planta* imaging of arbuscules using GFP fusion proteins
*Yoshihiro Kobae, Shingo Hata
Nagoya Univ.

15 PiP elicitor and suppressor of *Phytophthora infestans* regulate Ca2+ dependent portein kinase and the occurence of hypersensitive cell death in potato
*Naotaka Furuichi[1] ,Hisakazu Okamura[2], Masahiro Ohta[1]
[1]Grad.School of Science and Tech., Niigata Univ., [1]School of Technology, Niigata Univ.

17:55 to 18:40 Discussion for presentation No. 1-15

**9 September, Wednesday**
9:00 to 9:40 90 seconds presentation of odd number posters

9:40 to 11:10 Poster session (odd number posters)

11:10 to 12:00 Discussion for odd number posters

12:00 to 14:00 Lunch

14:00 to 14:40 90 seconds presentation of even number posters

14:40 to 16:10 Poster session (even number posters)

16:10 to 17:00 Discussion for even number posters

17:30 to 18:15 Special lecture
Prof. Masato Ikeda (Shinshu Univ., Japan)
Strain Engineering in Genomic Era

**10 September, Thursday**
9:00 to 10:30 Session IV

16 The key new features of the RhizoBase
*Shiobu Okamoto[1, 2], Mitsuteru Nakao[1, 2], Takatomo Fujisawa[1, 2], Shusei Sato[1, 2], Yasukazu Nakamura[2, 3], Takakazu Kaneko[2, 4]
[1]DBCLS, [2]Kazusa DNA Res. Inst., [3]NIG DDBJ, [4]Kyoto Sangyo Univ.

17 Characterization and map-based cloning of *Ljsym102* involved in nitrogen fixation activity in Lotus japonicus
Hiroko Yamaya[1], Tsuneo Hakoyama[1], Shusei Sato[2], Takakazu Kaneko[2], Satoshi Shibata[1], Yoshihiro Hase[3], Atsushi Tanaka[3], Masayoshi Kawaguchi[4], Norio Suganuma[5], Satoshi Tabata[2], Makoto Hayashi[1], Hiroshi Kouchi[1], Yosuke Umehara[1]
[1]NIAS, [2]Kazusa DNA Res.Inst., [3]Japan Atomic Energy Agency, [4]NIBB, [5]Aichi Univ. of Education.

18 Structural analysis of a nitrogenase-like enzyme protochlorophyllide reductase catalyzing a key reaction for greening in the dark
*Yuichi Fujita[1, 3], Jiro Nomata[1], Norifumi Muraki[2], Genji Kurisu[2]
[1]Nagoya Univ., [2]Univ. Tokyo, [3]JST Presto

19 Surveying fungal gene expression during biotrophy in *Colletotrichum higginsianum*
*Hiroyuki Takahara, Richard O'Connell
Department of Plant-Microbe Interactions, Max Planck Institute for Plant Breeding Research.

20 Analysis of motility and virulence by using the defective mutant for flagellar motor protein (Mot) in *Pseudomonas syringae* pv. *tabaci*
*Eiko Kanda, Fumiko Taguchi, Takahumi Kenmotsu, Yoshishige Inagaki, Kazuhiro Toyoda, Tomonori Shiraishi and Yuki Ichinose
Graduate school of Natural Science and Technology, Okayama University

21 Analysis on global regulation of pathogenicity-related genes of *Ralstonia solanacearum*
*Yasufumi Hikichi, Takeshi Yoshimochi, Yong Zhang, Kouhei Ohnishi, Akinori Kiba
Kochi Univ.

10:45 to 11:30 Session V

22 Generation of ROS and NO and its role on disease resistance in plants
*Shuta Asai[1], Michie Kobayashi[2], Miki Yoshioka[1], Hirofumi Yoshioka[1]
[1]Graduate School of Bioagricaltural Sciences, Nagoya University, [2]NIAS

23 A sec14p protein regulates defense responses of Nicotiana plants.
*Akinori Kiba, Kouhei Ohnishi, Yasufumi Hikichi
Kochi Univ.

24 Comparative analysis of the Nod Factor signaling and chitin signaling
*Tomomi Nakagawa[1], Hanae Kaku[2], Akifumi Sugiyama[3], Masayuki Shimamura[4], Yoshikazu Shimoda[1], Kojiro Takanashi[3], Motomu Masai[3], Kazufumi Yazaki[3], Toshio Aoki[4], Naoto Shibuya[2], Hiroshi Kouchi[1]
[1]NIAS, [2]Meiji Univ., [3]Rish, Kyoto Univ., [4]Nihon Univ.

11:30 to 12:15 Discussion for presentation No. 16 – 24.

# 2009 JSPMI Poster presentation program

**Odd numbers, 9 September, Wednesday 9:00-11:10**
**Even numbers, 9 September, Wednesday 14:00-16:10**

P1 Expression of lipopolysaccharide binding protein genes in *Lotus japonicus*
*Ei-ichi Murakami[1], Hitomi Takayama[1], Yoshikazu Shimoda[2], Shusei Sato[3], Sayaka Muto[4, 5], Kucho Ken-ichi[1], Shiro Higashi[1], Mikiko Abe[1], Yukio Nagano[4], Toshiki Uchiumi[1]
[1]Grad. Sc. Sci. & Eng., Kagoshima Univ., [2]NAIS, [3]Kazusa DNA Res. Inst., [4]Grad. Agr. Saga Univ., [5]Analyt. Res. Cent. Experimental Sci, Saga Univ.

P2 Development and characterization of core collection for wild accession of *Lotus japonicus*
*Masatsugu Hashiguchi[1], Sayumi Kai[2], Hidenori Tanaka[1], Takahiro Gondo[1], Hiroyoshi Iwata[3], Ryo Akashi[1]
[1]FSRC, Univ. of Miyazaki, [2]Interdiscipl. Grad. Sch. Agri. and Eng., Univ. of Miyazaki, [3]NARC

P3 Overexpression lines of a class 1 hemoglobin gene of *Lotus japonicus*
*Yo-ichiro Tanimura[1], Tomohiro Kado[1], Ken-ichi Kucho[1], Toshio Aoki[2], Shiro Higashi[1], Mikiko Abe[1], Toshiki Uchiumi[1]
[1]Kagoshima Univ.Grad. Schl. Sci. Eng., [2]Nihon Univ., Fac. Biores. Sci.

P4 Expression and functional analysis of a full-size ABCG type transporter, LjABCG1, in *Lotus japonicus*
*Shoju Fukuda[1], Akifumi Sugiyama[1], Kojiro Takanashi[1], Nobukazu Shitan[1], Shusei Sato[2], Satoshi Tabata[2], Kazufumi Yazaki[1]
[1]Kyoto Univ., [2]Kazusa DNA Res. Inst.

P5 Functional analysis of SNARE genes in *Lotus japonicus* nodules
*Yosuke Kanki, Tomomi Manabe, Misa Komi, Mika Nomura, Sigeyuki Tajima
Faculty of Agriculture, Kagawa University

P6 Screening of ABA related-mutants of *Lotus japonicus*
*Ayaka Yamauchi[1], Susumu Arima[1], Masatsugu Hashiguchi[2], Ryo Akashi[2], Akihiro Suzuki[1]
[1]Fac.Agr., Saga Univ., [2]FSRC., Miyazaki Univ.

P7 Functional characterization of *Mesorhizobium loti* STM mutants in *Lotus japonicus* symbiosis
*Nanthipak Thapanapongworakul[1], Hiroto Tsuji[1], Shusei Sato[2], Yoshikazu Shimoda[2], Satoshi Tabata[2], Mika Nomura[1], Shigeyuki Tajima[1]
[1]Faculty of Agriculture, Kagawa University, [2]Kazusa DNA Research Institute

P8 Phenotype of class 1 hemoglobin mutant limes of *Lotus japonicus*
*Tomohiro Kado, Ken-ichi Kucho, Mikiko Abe, Siro Higashi, Toshiki Uchiumi
Grad.Sc. Sci. & Eng., Kadoshima Univ.

P9 Functional analysis of soybean and *Lotus japonicus* mitochondrial proteins
*Hatthaya Arunothayanan, Mika Nomura, Shigeyuki Tajima
Faculty of Agriculture, Kagawa University

P10 The effect and mechanism of enhanced nitrogen fixation in ABA low-sensitive mutant *enf1* of *Lotus japonicus*
*Koichi Futsuki[1], Akiyoshi Tominaga[1], Maki Nagata[2], Hidetoshi Abe[1], Toshiki Uchiumi[3], Ken-ichi Kucho[3], Mikiko Abe[3], Masatsugu Hashiguchi[4], Ryo Akashi[4], Ann Hirsch[5], Susumu Arima[1], Akihiro Suzuki[1]
[1]Fac.Agr., Saga Univ., [2]Grad. Sc. Sci & Eng., Kagoshima Univ., [3]Fac. Sci., Kagoshima Univ., [4]FSRC., Miyazaki Univ., [5]UCLA

P11 Toward identification of genes that promote rice growth by AM symbiosis.
*Sayo Suzuki[1], Mari Banba[2], Yoshihiro Kobae[2], Daisuke Nakagawa[2], Shingo Hata[2]
[1]Sch. Agriculture, Nagoya Univ., [2]Grad. Sch. Bioagricult. Sci., Nagoya Univ.

P12 Characterization of novel Hist$^-$ mutants in *Lotus japonicus*
*Koji Yano[1], Norio Suganuma[2], Shusei Sato[3], Satoshi Tabata[3], Hiroshi Kouchi[1], Yosuke Umehara[1]
[1]NIAS, [2]Aichi University of Education, [3]Kazusa DNA Res. Inst.

P13 Mesorhizobial genes specifically expressed during establishment and maintenance of symbiosis with *Lotus japonicus*: findings by improved RIVET system
Eriko Ishida[1], * Yoshimi Tani[1], Elina Mishima[1], Shin Okazaki[1], Shusei Sato[2], Satoshi Tabata[2], *Kazuhiko Saeki[1]
[1]Nara Women's University, [2]Kazusa DNA Research Institute

P14 Development of DNA microarray for *Mesorhizobium loti* MAFF303099 and its application on the comprehensive transcriptome analysis
*Hiroyuki Ichida[1,2], Katsuyoshi Yoneyama[1], Tomoko Abe[2]
[1]Faculty of Agriculture, Meiji University, [2]Nishina Center, RIKEN

P15 Analysis of effector proteins of *Mesorhizobium loti* TypeIII Secretion System
*Miku Higashi[1], Saori Okabe[1], Shin Okazaki[1], Yoshikazu Shimoda[2], Shusei Sato[2], Satoshi Tabata[2], Tetsuko Noguchi[1], Kazuhiko Saeki[1]
[1]Nara Women's Univ., [2]Kazusa DNA Research Institute

P16 Genomic comparison between strains USDA122 and USDA110 of *Bradyrhizobium japonicum*
Takahiro Tsukui[1], Takakazu Kaneko[2], Manabu Itakura[1], Manabu Yamada[3], Shusei Sato[3] ,Hisayuki Mitsui[1], Shima Eda[1], Kiwamu Minamisawa[1]
[1]Graduate School of Life Sciences, Tohoku University, [2]Kyoto Sangyo University,

[3]Kazusa DNA Research Institute

P17 Analysis of novel symbiotic gene of *Mesorhizobium loti* with *M. loti* MAFF303099 mutated by signature-tagged mutagenesis
*Hiroki Nakatsukasa[1], Yoshikazu Shimoda[2], Yasukazu Nakamura[3], Satoshi Tabata[1], Shusei Sato[1]
[1]Kazusa DNA Res. Inst., [2]NIAS, [3]DDBJ

P18 Functional and evolutionary genomics: evolutionary estimation and empirical verification of the functional genes in rhizobia genome for mutualism between legumes and rhizobia
Seishiro Aoki[1], Yoshikazu Shimoda[2], Motomi Ito[1]
[1]Tokyo Univ., [2]NIAS

P19 Rhizobium Type III secretion system is involved in the nodulation of *Rj* soybean
*Shin Okazaki, Kazuhiko Saeki
Department of Biological Science, Faculty of Science, Nara Women's University

P20 KazusaMart: data integration and management system for RhizoBase
*Takatomo Fujisawa[1], Shinobu Okamoto[1,2], Mitsuteru Nakao[1,2], Takakazu Kaneko[1, 3], Shusei Sato[1], Yasukazu Nakamura[1,4]
[1]KDRI, [2]DBCLS, [3]Kyoto Sangyo Univ., [4]NIG DDBJ

P21Analysis of factors on increase of Endophytic infections of non-symbiotic to black soybean root nodules under continuous cropping of black soybean.
Kenichi Nakajim[1], *Tadashi Yokoyama[1], Masami Yoshikawa[2], Seiji Matsumoto[2]
[1]Tokyo Univ. of Agriculture and Technology, [2]Kyoto Prefectural Agriculture, Forestry and Fisheries Technology Center

P22 Complete genomic structure of the cultivated rice endophyte *Azospirillum* sp. B510
Takakazu Kaneko[1], Kiwamu Minamisawa[2], Hiroki Nakatsukasa[3], Hisayuki Mitsui[2], Yasuyuki Kawaharada[2], Yasukazu Nakamura[4], Satoshi Tabata[3], Shusei Sato[3]
[1]Kyoto Sangyo Univ., [2]Tohoku Univ., [3]Kazusa DNA Res. Inst., [4]DDBJ

P23 Repression of Type III Secretion System in *Bradyrhizobium japonicum nolA* and *nodD2* mutants
*Keisuke Takeshima[1], Min Wei[1], Tadashi Yokoyam[2], Kiwamu Minamisawa[3], Hisayuki Mitsui[3], Manabu Itakura[3], Takakazu Kaneko[4], Satoshi Tabata[5], Kazuhiko Saeki[6], Hirofumi Oomori[7], Shigeyuki Tajima[8], Toshiki Uchiumi[9], Mikiko Abe[9], Takuji Ohwada[1]
[1]Obihiro University of Agriculture and Veterinary Medicine, [2]Tokyo University of Agriculture and Technology, [3]Graduate school of Life Science, Tohoku University, [4]Faculty of Engineering, Kyoto Sangyo University, [5]Kazusa DNA Research Institute, [6]Department of Biology Science, Nara Women's University, [7]Department of Biology, Graduate School of Science Osaka University, [8]Department of Life Science, Kagawa University, [9]Graduate School of Science and Engineering, Kagoshima University

P24 The linkage mapping and the phenotypic characterization of symbiotic mutants of *Lotus japonicus*, specific for arbuscular mycorrhiza
*Tomoko Kojima[1], Hirosuke Oba[2], Katsuharu Saito[3], Suganuma Norio[4], Masayoshi Kawaguchi[5], Ryo Ohtomo[1, 6]
[1]National Institute of Livestock and Grassland Science, [2]The University of Tokyo, [3]Shinshu University, [4]Aichi University of Education, [5]National Institute of Basic Biology, [6]present: Ministry of Agriculture, Forestry and Fisheries

P25 Mycorrhiza-inducible mineral nutrient transporters of rice and sorghum
*Daisuke Nakagawa, Yoshihiro Kobae, Shingo Hata
Grad.Sch.Bioagricult.Sci., Nagoya Univ.

P26 Proteomic analysis of a *S. meliloti* strain BL3 membrane proteins by mass spectrometry and investigation of salt stress response
Tanthanuch, W.[1], Mohammed, S.[2], Matthiesen, R.[2], Titrabutr, P.[1], Yamabhai, M.[1], Taemthaisong, K.[1], Jensen, Ole N.[2], *Teaumroong, N.[1], Boonkerd, N.[1]
[1]Sc. Biotech., Agr. tech., Suranaree Univ. Technology., [2]Dept. Biochem., Mol. Biol., Univ. Southern Denmark.

P27 Arbuscular mycorrhizal symbiosis in rice strigolactone-deficient mutants
*Satoko Yoshida[1], Mikihisa Umehara[1], Kohki Akiyama[2], Junko Kyozuka[3], Shinjiro Yamaguchi[1], Ken Shirasu[1]
[1]RIKEN, PSC, Osaka Pref. Univ., [3]Univ. Tokyo

P28 Application of strong promoters to transformation of the symbiotic nitrogen-fixing bacterium *Frankia*
*Kentaro Kakoi, Masatoshi Yamaura, Shiro Higashi, Toshiki Uchiumi, Mikiko Abe, Ken-ichi Kucho
Graduate School of Science and Engineering, Kagoshima University

P29 Involvement of phospholipid metabolism in *Ralstonia solanacearum*-tobacco plants interaction
*Masahito Nakano, Kouhei Ohnishi, Yasufumi Hikichi, Akinori Kiba
Kochi Univ.

P30 Induction of hyphal branching in an AM fungus *Glomus intraradices* by a branched fatty acid from *Paenibacillus validus*
Kohki Akiyama, *Ippo Tsutsui, Hideo Hayashi
Grad. Sch. Life & Environ. Sci., Osaka Prefecture Univ.

P31 Expression of an abscisic acid-responsive β-1,3-glucanase gene in autoregulation of nodulation
*Osuki, K.[1], Suzuki, A.[3], Hara, H.[1], Kinoue, T.[2], Yamashita, K.[1], Ishihara, M.[2], Kobayashi, Y.[2], Asami, T.[4], Kucho, K.[1], Uchiumi, T.[1], Higashi, S.[1], Abe, M.[1]
[1]Graduate School of Science and Engineering, Kagoshima Univ. [2]Department of Chemistry and Bioscience, Kagoshima Univ., [3]Department of Environmental Science,

Saga Univ., [4] Graduate School of Agriculture and Life Science, Tokyo Univ.

P32 Effects of the inoculation with endophytic *Azospirillum* sp. B510 on the morphology, growth and gene expression of rice seedlings
*Ayumi Momiyama[1], Shima Eda[1], Michiko Yasuda[2], Hideo Nakashita[2], Tadashi Sato[1], Hisayuki Mitsui[1], Kiwamu Minamisawa[1]
[1]Tohoku Univ., [2]RIKEN

P33 Screening for cowpea nodule bacteria with high ability of biological nitrogen fixation -Influence of the light intensities-
*Shunsei Fujimoto, Takeo Yamakawa, Papa Saliou SARR
Kyushu Univ. Bio.

P34 Screening of rhizobacteria that can inhibit the growth of plant pathogenic fungi for using as co-inoculation with rhizobial inoculant
Watcharin Yuttawanichakul, Thi Thi Aung, Sudarat Sripakdee, Neung Teaumroong, Nantakorn Boonkerd, *Panlada Tittabutr.
Sch. Biotech., Inst. Agr. Tech., Suranaree University of Technology

P35 Bacteroidal differentiation in the nodules of a leguminous tree *Leucaena glauca*
*Hironobu Ishihara[1], Hiroki Koriyama[2], Peter Mergaert[3], Ken-ichi Kucho[1], Mikiko Abe[1], Shiro Higashi[2], Toshiki Uchiumi[1]
[1]Grad. Sc. Sci. & Eng., Kagoshima Univ., [2]Faculty of Science, Kagoshima Univ., [3]Institut des Sciences du Végétal-CNRS

P36 Effects of Plant Growth Promoting Rhizobacteria (PGPR) inoculum on indigenous microbial community structure on maize cultivation
*Piromyou, P., Tittabutr, P., Boonkerd, N., Teaumroong, N.
Sch. Biotech., Inst. Agr. Tech., Suranaree University of Technology

P37 Early induction of haustorium-like organs in *Orobanche minor* by saturated GR24
Kohki Akiyama[1], *Naoto Matsumoto[1], Xiaonan Xie[2], Koichi Yoneyama[2], Hideo Hayashi[1]
[1]Grad. Sch. Life & Environ. Sci., Osaka Prefecture Univ., [2]Weed Sci. Ctr., Utsunomiya Univ.

P38 Identification of *Frankia* genes induced in nitrogen-fixing cell under free-living conditions
*Masatoshi Yamaura, Shiro Higashi, Toshiki Uchiumi, Mikiko Abe, Ken-ichi Kucho
Grad. Sch. Sci & Engineer., Kagoshima Univ.