

REFERENCES

- Agustiniano-Osornio, J.C., R.A. Gonzalez-Soto, E. Flores-Huicochea, N. Manrique-Quevedo, L. Sanchez-Hernandez, and L.A. Bello-Perez. 2005. Resistant starch production from mango starch using a single-screw extruder. *Journal of the Science of Food and Agriculture* 85:2105–2110.
- Ahmed, J., H.S. Ramaswamy, A. Ayad, and I. Alli. 2008. Thermal and dynamic rheology of insoluble starch from basmati rice. *Food Hydrocolloids* 22:278–287.
- Allahgholipour, M., A.J. Ali, F. Alinia, T. Nagamine, and Y. Kojiima. 2006. Relationship between rice grain amylose and pasting properties for breeding better quality rice varieties. *Plant Breeding* 125:357–362.
- Allwood, J.W., A. Erban, S. de Koning, W. Dunn, A. Luedemann, A. Lommen, L. Kay, L.R.J. Kopka, and R. Goodacre. 2009. Inter-laboratory reproducibility of fast gas chromatography–electron impact–time of flight mass spectrometry (GC–EI–TOF/MS) based plant metabolomics. *Metabolomics* 5:479–496.
- American Association of Cereal Chemists I. 2000. Approved methods of the American Association of Cereal Chemists, 10th ed., American Association of Cereal Chemists, St. Paul, MN
- Angelini, R., A. Cona, R. Federico, P. Fincato, P. Tavladoraki, and A. Tisi. 2010. Plant amine oxidases "on the move": An update. *Plant Physiology and Biochemistry* 48:560–564.
- Appa Rao, S., C. Bounphanousay, J.M. Schiller, and M.T. Jackson. 2002a. Collection, classification, and conservation of cultivated and wild rices of the Lao PDR. *Genetic Resources Crop Evolution* 49:75–81.
- Appa Rao, S., C. Bounphanousay, J.M. Schiller, A.P. Alcantara, and M.T. Jackson. 2002b. Naming of traditional rice varieties by farmers in the Lao PDR. *Genetic Resources and Crop Evolution* 49:83–88.

- Arikrit, S., T. Yoshihashi, S. Wanchana, T.T. Uyen, N.T.T. Huong, S. Wongpornchai, and A. Vanavichit. 2011. Deficiency in the amino aldehyde dehydrogenase encoded by GmAMADH2, the homologue of rice Os2AP, enhances 2-acetyl-1-pyrroline biosynthesis in soybeans (*Glycine max* L.). *Plant Biotechnology Journal* 9:75-87.
- Association, A.D. 2004. Nutrition Principles and Recommendations in Diabetes. *Diabetes Care* 27:s36.
- Bahmaniar, M.A., and G.A. Ranjbar. 2007. Response of rice (*Oryza sativa* L.) cooking quality properties to nitrogen and potassium application. *Pakistan Journal of Biological Sciences* 10:1880-1884.
- Bao, J.S., and Y.W. Xia. 1999. Genetic control of paste viscosity characteristics in indica rice (*Oryza sativa* L.). *Theoretical Applied Genetics* 98:1120–1124.
- Bao, J.-S., H.Y. Xu, J.K. Xie, and Y.W. Xia. 2000. Analysis of genetic covariances between rice eating and cooking quality and plant height at different stages. *Acta Agriculturae Zhejiangensis* 12:6–10.
- Baxter, G., C. Blanchard, and J. Zhao. 2004. Effects of prolamin on the textural and pasting properties of rice flour and starch. *Journal of Cereal Science* 40:205-211.
- Bergman, C.J., J.T. Delgado, R.J. Bryant, C.C. Grimm, K.R. Cadwallader, and B.D. Webb. 2000. Rapid gas chromatographic technique for quantifying 2-acetyl-1-pyrroline and hexanal in rice (*Oryza sativa* L.). *Cereal Chemistry* 77:454–458.
- Bestari, N.G., S. Shrestha, and C.J. Mongcopa. 2006. Lao PDR: An Evaluation Synthesis on Rice. Operations Evaluation Department, Asian Development Bank. [online]
<http://home.wfp.org/stellent/groups/public/documents/ena/wfp207986.pdf>
 (Posted September 2006). (Accessed January 17, 2011)
- Bond, J.A., T.W. Walker, B.V. Ottis, and D.L. Harrell. 2008. Rice seeding and nitrogen rate effects on yield and yield components of two rice cultivars. *Agronomy Journal* 100:393–397.
- Borrell, A.K., A.L. Garside, S. Fukai, and D.J. Reid. 1999. Grain quality of flooded rice is affected by season, nitrogen rate, and plant type. *Australian Journal of Agricultural Research* 50:1399-1408.

- Boualaphanh, C., M. Calingacion, D. Jothityangkoon, J. Sanitchon, R. Cuevas, and M. Fitzgerald. In Press. Yield and quality of non-aromatic and aromatic Lao rice in response to nitrogen fertilizer *Science Asia*.
- Boualaphanh, C., V.D. Daygon, M.N. Calingacion, J. Sanitchon, D. Jothityangkoon, R. Mumm, R.D. Hall, and M.A. Fitzgerald. Submitted. Use of new generation SNP genotyping for rapid development of near isogenic lines in rice. *Crop Science*.
- Bouché, N., and H. Fromm. 2004. GABA in plants: just a metabolite? *Trends in Plant Science* 9:110-115.
- Bounphanousay, C. 2007. Use of phenotypic characters and DNA profiling for classification of the genetic diversity in black glutinous rice of the Lao PDR. PhD Thesis, Khon Kaen University.
- Bounphanousay, C., V. Bounphanousay, K. Kanyavong, and P. Inthapanya. 2009. Khao Kay Noi ("Small Chicken Rice") is high grain quality confined to higher altitude. *The Lao Journal of Agriculture and Forestry* 20:1–22.
- Bounphanousay, C., P. Jaisil, J. Sanitchon, M.A. Fitzgerald, and N.R. Sackville-Hamilton. 2008. Chemical and molecular characterization of fragrance in black glutinous rice from Lao PDR. *Asian Journal of Plant Sciences* 7:1–7.
- Bounphanousay, C., S. Appa Rao, K. Kanyavong, B. Sengthong, J.M. Schiller, and M.T. Jackson. 2000. Conservation of Lao Rice Germplasm at the International Rice Genebank, IRRI, Philippines Part 5, p. 22, Los Banos.
- Bradbury, L., S. Gillies, D. Brushett, D. Waters, and R. Henry. 2008. Inactivation of an aminoaldehyde dehydrogenase is responsible for fragrance in rice. *Plant Molecular Biology* 68:439-449.
- Bradbury, L.M.T., T.L. Fitzgerald, R.J. Henry, Q.S. Jin, and D.L.E. Waters. 2005a. The gene for fragrance in rice. *Plant Biotechnology Journal* 3:363-370.
- Bradbury, L.M.T., R.J. Henry, Q.S. Jin, R.F. Reinke, and D.L.E. Waters. 2005b. A perfect marker for fragrance genotyping in rice. *Molecular Breeding* 16:279-283.
- Bushuk, W. 1998. Interactions in wheat doughs, p. 1–15, *In* R.J. Hamer and R.C. Hosney, eds. *Interactions: The Keys to Cereal Quality*. American Association of Cereal Chemists, Inc., St Paul.

- Butsat, S., and S. Siriamornpun. 2010. Antioxidant capacities and phenolic compounds of the husk, bran and endosperm of Thai rice. *Food Chemistry* 119:606–613.
- Buttery, R.G., L.C. Ling, and B.O. Juliano. 1982. 2-acetyl-1-pyrroline: An important aroma component of cooked rice. *Chemistry and Industry* 23:958–959.
- Buttery, R.G., B.O. Juliano, and L.C. Ling. 1983a. Identification of rice aroma compound 2-acetyl-1-pyrroline in pandan leaves. *Chemistry and Industry* 12:478–478.
- Buttery, R.G., L.C. Ling, B.O. Juliano, and J.G. Turnbaugh. 1983b. Cooked rice aroma and 2-Acetyl-1-Pyrroline. *Journal of Agricultural and Food Chemistry* 31:823-826.
- Champagne, E.T., K.L. Bett-Garber, J.L. Thomson, and M.A. Fitzgerald. 2009. Unraveling the impact of nitrogen nutrition on cooked rice flavor and texture *Cereal Chemistry* 86:274–280.
- Champagne, E.T., K.L. Bett, B.T. Vinyard, A.M. McClung, F.E. Barton, K.A. Moldenhauer, S. Linscombe, and K.S. McKenzie. 1999. Correlation between cooked rice texture and Rapid Visco Analyser measurements. *Cereal Chemistry* 76:764–771.
- Champagne, E.T., K.L. Bett-Garber, M.A. Fitzgerald, C. Grimm, J. Lea, K. Ohtsubo, S. Jongdee, L. Xie, P. Bassinello, A.P. Resurreccion, R. Ahmad, F. Habibi, and R. Reinke. 2010. Important sensory properties differentiating premium rice varieties. *Rice* 3:270-281.
- Chen, J., V.M.F. Lai, and C.Y. Lii. 2003. Effects of compositional and granular properties on the pasting viscosity of rice starch blends. *Starch - Stärke* 55:203–212.
- Chen, S., Y. Yang, W. Shi, Q. Ji, F. He, Z. Zhang, Z. Cheng, X. Liu, and M. Xu. 2008. *Badh2*, encoding betaine aldehyde dehydrogenase, inhibits the biosynthesis of 2-Acetyl-1-Pyrroline, a major component in rice fragrance. *Plant Cell*:10.1105/tpc.108.058917

- Christiansen, J.K., J.E. Hughes, D.L. Welker, B.T. Rodriguez, J.L. Steele, and J.R. Broadbent. 2008. Phenotypic and genotypic analysis of amino acid auxotrophy in *Lactobacillus helveticus* CNRZ 32. *Applied and Environmental Microbiology* 74:416-423.
- Cona, A., G. Rea, R. Angelini, R. Federico, and P. Tavladoraki. 2006. Functions of amine oxidases in plant development and defence. *Trends in Plant Science* 11:80-88.
- Cuevas, R., V. Daygon, H. Corpuz, D.L.E. Waters, R.F. Reinke, and M.A. Fitzgerald. 2010a. Melting the secrets of gelatinisation temperature. *Functional Plant Biology* 37:439 - 447.
- Cuevas, R.P., V.D. Daygon, H.M. Corpuz, R.F. Reinke, D.L.E. Waters, and M.A. Fitzgerald. 2010b. Melting the secrets of gelatinisation temperature in rice. *Functional Plant Biology* 37:439–447.
- De Kimpe, N., and M. Keppens. 1996. Novel syntheses of the major flavor components of bread and cooked rice. *Journal of Agricultural and Food Chemistry* 44:1515-1519.
- Delforge, I. 2001. Laos at the crossroads [Online]
<http://www.grain.org/seedling/?id=152> (Posted May 6, 2008). (Accessed January 17, 2011)
- Dodsworth, J. 1997. How Indochina's economies took off. *Finance and Development* 34:20-23.
- Duff, B. 1991. Trends and patterns in Asian rice consumption, p. 1-24 *Rice Grain Marketing and Quality Issues*. International Rice Research Institute, Manila.
- Eriksson, L., E. Johansson, N. Kettaneh-Wold, C. Wikström, J. Trygg, and S. Wold. 2006. *Multi- and Megavariate Data Analysis; Part I: Basic Principles and Applications*. 2nd ed. Umetrics Academy Umea, Sweden.
- Fitzgerald, M.A., S.R. McCouch, and R.D. Hall. 2009. More than just a grain of rice, the global quest for quality. *Trends in Plant Science* 14:133-139.
- Fitzgerald, M.A., M. Martin, R.M. Ward, W.D. Park, and H.J. Shead. 2003. Viscosity of rice flour: A rheological and biological study. *Journal of Agricultural and Food Chemistry* 51:2295-2299.

- Fitzgerald, M.A., N.R. Sackville-Hamilton, M.N. Calingacion, H.A. Verhoeven, and V. Butardo, Jr. 2008. Is there a second gene for fragrance in rice? *Plant Biotechnology Journal* 6:416–423.
- Fogel, W.A., T. Biegański, and C. Maśliński. 1979. Effects of inhibitors of aldehyde metabolizing enzymes on putrescine metabolism in guinea pig liver homogenates. *Inflammation Research* 9:42-44.
- Fulton, T.M., J. Chunwongse, and S.D. Tanksley. 1995. Microprep protocol for extraction of DNA from tomato and other herbaceous plants. *Plant Molecular Biology Reporter* 13:207-209.
- Garris, A.J., T.H. Tai, J. Coburn, S. Kresovich, and S.R. McCouch. 2005. Genetic structure and diversity in *Oryza sativa* L. *Genetics* 169:1631-1638.
- Hall, R.D. 2006. Plant metabolomics: from holistic hope, to hype, to hot topic. *New Phytologist* 169:453-468.
- Hall, R.D. 2007. Food metabolomics: META-PHOR A new European research initiative. *Agro Food Industry Hi-Tech* 18:14-16.
- Hall, R.D., I.D. Brouwer, and M.A. Fitzgerald. 2008. Plant metabolomics and its potential application for human nutrition. *Physiologia Plantarum* 132:162–175.
- Hall, R.D., M. Beale, O. Fiehn, N. Hardy, L. Sumner, and R. Bino. 2002. Plant Metabolomics: The missing link in functional genomics strategies. *The Plant Cell* 14:1437–1440.
- Hansen, T., K. Laursen, D. Persson, P. Pedas, S. Husted, and J. Schjoerring. 2009. Micro-scaled high-throughput digestion of plant tissue samples for multi-elemental analysis. *Plant Methods* 5:12.
- Heinemann, R.J.B., Z. Xu, J.S. Godber, and U.M. Lanfer-Marquez. 2008. Tocopherols, tocotrienols, and γ -oryzanol contents in japonica and indica subspecies of rice (*Oryza sativa* L.) cultivated in Brazil. *Cereal Chemistry* 85:243-247.
- Hossain, M., and J. Narciso. 2004. *Global Rice Economy: Long-term Perspectives Rice in Global Markets and Sustainable Production Systems*. FAO, Italy, Rome, Italy.

- Huang, T.-C., C.-S. Teng, J.-L. Chang, H.-S. Chuang, C.-T. Ho, and M.-L. Wu. 2008. Biosynthetic mechanism of 2-acetyl-1-pyrroline and its relationship with Δ^1 -pyrroline-5-carboxylic acid and methylglyoxal in aromatic rice (*Oryza sativa* L.) callus. *Journal of Agricultural and Food Chemistry* 56:7399-7404.
- Hughes, R., and A. Carr. 2002. A randomized, double-blind, placebo-controlled trial of glucosamine sulphate as an analgesic in osteoarthritis of the knee. *Rheumatology* 41:279-284.
- Hyten, D.L., J.R. Smith, R.D. Frederick, M.L. Tucker, Q. Song, and P.B. Cregan. 2009. Bulked segregant analysis using the GoldenGate Assay to locate the *Rpp3* locus that confers resistance to soybean rust in soybean. *Crop Science* 49:265-271.
- Inthapanya, P., C. Boualaphanh, Hatsadong, and J.M. Schiller. 2006. The history of lowland rice variety improvements in Laos, p. 325–358, *In* J.M. Schiller, et al., eds. *Rice in Laos*. IRRI, Manila.
- Itani, T., M. Tamaki, Y. Hayata, T. Fushimi, and K. Hashizume. 2004. Variation of 2-acetyl-1-pyrroline concentration in aromatic rice grains collected in the same region in Japan and factors affecting its concentration. *Plant Production Science* 7:178-183.
- Jairin, J., S. Teangdeerith, P. Leelagud, J. Kothcharerk, K. Sansen, M. Yi, Vanavichit. A, and T. Toojinda. 2009. Development of rice introgression lines with brown planthopper resistance and KDML105 grain quality characteristics through marker-assisted selection. *Field Crops Research* 110:263-271.
- Juliano, B.O. 1985. Criteria and Tests for Rice Grain Qualities, p. 43-524, *In* B.O. Juliano, ed. *Rice Chemistry and Technology*, 2nd ed. American Association of Cereal Chemists, Inc., St. Paul, MN.
- Katoh, A., T. Shoji, and T. Hashimoto. 2007. Molecular cloning of N-methylputrescine oxidase from tobacco. *Plant & Cell Physiology* 48:550-554.
- Kerler, J., J.G.M. vanderVen, and H. Weenen. 1997. a-acetyl-N-heterocycles in the Maillard reaction. *Food Reviews International* 13:553–575.



- Keurentjes, J.J.B., L. Bentsink, C. Alonso-Blanco, C.J. Hanhart, H. Blankestijn-De Vries, S. Effgen, D. Vreugdenhil, and M. Koornneef. 2007. Development of a near-isogenic line population of *Arabidopsis thaliana* and comparison of mapping power with a recombinant inbred line population. *Genetics* 175:891–905.
- Khush, G.S. 1997. Origin, dispersal, cultivation and variation of rice. *Plant Molecular Biology* 35:25-34.
- Kovach, M.J., M. Calingacion, M.A. Fitzgerald, and S.R. McCouch. 2009. The origin and evolution of fragrance in rice (*Oryza sativa* L.). *Proceedings of the National Academy of Science* 106:14444-14449.
- Kusano, T., T. Berberich, C. Tateda, and Y. Takahashi. 2008. Polyamines: essential factors for growth and survival. *Planta* 228:367-381.
- Laursen, K., T. Hesselhøj Hansen, D. Persson, J. Schjoerring, and S. Husted. 2009. Multi-elemental fingerprinting of plant tissue by semi-quantitative ICP-MS and chemometrics. *Journal of Analytical Atomic Spectroscopy* 24 1198 - 1207.
- Lee, G.-A., H.-J. Koh, H.-K. Chung, A. Dixit, J.-W. Chung, K.-H. Ma, S.-Y. Lee, J.-R. Lee, G.-S. Lee, J.-G. Gwag, T.-S. Kim, and Y.-J. Park. 2009. Development of SNP-based CAPS and dCAPS markers in eight different genes involved in starch biosynthesis in rice. *Molecular Breeding* 24:93–101.
- Li, Z.K., B.Y. Fu, Y.M. Gao, J.L. Xu, J. Ali, H.R. Lafitte, Y.Z. Jiang, J.D. Rey, C.H.M. Vijayakumar, R. Maghirang, T.Q. Zheng, and L.H. Zhu. 2005. Genome-wide introgression lines and their use in genetic and molecular dissection of complex phenotypes in rice (*Oryza sativa* L.). *Plant Molecular Biology* 59:33-52.
- Liao, S., P. Poonpairaj, K. Ko, Y. Takatuska, Y. Yamaguchi, N. Abe, J. Kaneko, and Y. Kamio. 2008. Occurrence of agmatine pathway for putrescine synthesis in *Selenomonas ruminatum*. *Biosciences, Biotechnology and Biochemistry* 72:445-455.
- Lommen, A. 2009. MetAlign: Interface-driven, versatile metabolomics tool for hyphenated full-scan mass spectrometry data preprocessing. *Analytical Chemistry* 81:3079-3086.

- Luo, A.L., J.Y. Liu, D.Q. Ma, W.C. Wang, and Z. Liang. 2001. Increment of antioxidase activity of transgenic tobacco with betaine aldehyde dehydrogenase. *Chinese Science Bulletin* 46:492-495.
- Martin, M., and M.A. Fitzgerald. 2002. Proteins in rice grains influence cooking properties. *Journal of Cereal Science* 36:285-294.
- McCouch, S., and CGSNL . 2008. Gene nomenclature system for rice. *Rice* 1:72–84.
- McNally, K.L., R. Bruskiewich, D.J. Mackill, C.R. Buell, J.E. Leach, and H. Leung. 2006. Sequencing multiple and diverse rice varieties. Connecting whole-genome variation with phenotypes. *Plant Physiology* 141:26–31.
- McNally, K.L., K.L. Childs, R. Bohnert, R.M. Davidson, K. Zhao, V.J. Ulat, G. Zeller, R.M. Clark, D.R. Hoen, T.E. Bureau, R. Stokowski, D.G. Ballinger, K.A. Frazer, D.R. Cox, B. Padhukasahasram, C.D. Bustamante, D. Weigel, D.J. Mackill, R.M. Bruskiewich, G. RÃ¶tsch, C.R. Buell, H. Leung, and J.E. Leach. 2009. Genomewide SNP variation reveals relationships among landraces and modern varieties of rice. *Proceedings of the National Academy of Sciences* 106:12273-12278.
- Merca, F.E., and B.O. Juliano. 1981. Physicochemical properties of starch of intermediate-amylose and waxy rices differing in grain quality. *Starch - Stärke* 33:253-260.
- Moing, A., M. Maucourt, C. Renaud, M. Gaudillère, R. Brouquisse, B. Lebouteiller, A. Gousset-Dupont, J. Vidal, D. Granot, B. Denoyes-Rothan, Lerceteau-Köhler, and D. Rolin. 2004. Quantitative metabolite profiling by 1-dimensional ¹H NMR analyses: application to plant genetics and functional genomics. *Functional Plant Biology* 31:889-902.
- Moschou, P., K. Paschalidis, and K. Roubelakis-Angelakis. 2008. Plant polyamine catabolism: The state of the art. *Plant Signalling and Behaviour* 3:1061-1066.
- Myint, Y., K. Nwea, A. Vanavichit, W. Chai-arree, and T. Toojinda. 2009. Marker assisted backcross breeding to improve cooking quality traits in Myanmar rice cultivar Manawthukha. *Field Crops Research* 113:178–186.
- Nadaf, A.B., S. Krishnan, and K.V. Wakte. 2006. Histochemical and biochemical analysis of major aroma compound (2-acetyl-1-pyrroline) in basmati and other scented rice (*Oryza sativa* L.). *Current Science* 91:1533-1536.

- Nakamura, T., S. Yokota, Y. Muramoto, K. Tsutsui, Y. Oguri, K. Fukui, and T. Takabe. 1997a. Expression of a betaine aldehyde dehydrogenase gene in rice, a glycinebetaine nonaccumulator, and possible localization of its protein in peroxisomes. *Plant Journal* 11:1115-1120.
- Nakamura, T., M. Nomura, M.S.B. Ku, Y. Muramoto, Y. Hayashi, A. Tanaka, M. Ishitani, and T. Takabe. 1997b. Possible localization of betaine aldehyde dehydrogenase in peroxisomes in barley and rice. *Plant Physiology* 114:626-626.
- Neeraja, C., R. Maghirang-Rodriguez, A. Pamplona, S. Heuer, B. Collard, E. Septiningsih, G. Vergara, D. Sanchez, K. Xu, A. Ismail, and D. Mackill. 2007. A marker-assisted backcross approach for developing submergence-tolerant rice cultivars. *TAG Theoretical and Applied Genetics* 115:767-776.
- Newton-Cheh, C., and J.N. Hirschhorn. 2005. Genetic association studies of complex traits: design and analysis issues. *Mutation Research-Fundamental and Molecular Mechanisms of Mutagenesis* 573:54-69.
- Nguyen, Q.H., and T.P. Bui. 1995. Azelaic acid - pharmacokinetic and pharmacodynamic properties and its therapeutic role in hyperpigmentary disorders and acne. *International Journal of Dermatology* 34:75-84.
- Okadome, H. 2005. Application of instrument-based multiple texture measurement of cooked milled-rice grains to rice quality evaluation. *Japan Agricultural Research Quarterly* 39:261-268.
- Olle, H. 1986. Putrescine, spermidine, and spermine. *Physiology* 1:12-15.
- Phakdisoth, L., and D. Kim. 2007. The determinants of inbound tourism in Laos. *ASEAN Economic Bulletin* 24:225-237.
- Quinet, M., A. Ndayiragije, I. Lefèvre, B.a. Lambillotte, C.C. Dupont-Gillain, and S. Lutts. 2010. Putrescine differently influences the effect of salt stress on polyamine metabolism and ethylene synthesis in rice cultivars differing in salt resistance. *Journal of Experimental Botany* 61:2719-2733.
- Raghavan, C., M.E.B. Naredo, H. Wang, G. Atienza, B. Liu, F. Qiu, K.L. McNally, and H. Leung. 2007. Rapid method for detecting SNPs on agarose gels and its application in candidate gene mapping. *Molecular Breeding* 19:87-101.

- Rani, M.R., and K.R. Bhattacharya. 1989. Slurry viscosity as a possible indicator of rice quality. *Journal of Texture Studies* 20:139-149.
- Renault, D., and T. Facon. 2004. Beyond drops for crops: The system approach for water value assessment in rice-based production systems *Rice in Global Markets and Sustainable Production Systems*, Rome, Italy.
- Roder, W., B. Keoboulapha, K. Vannalath, and B. Phouaravanh. 1996. Glutinous rice and its importance for hill farmers in Laos. *Economic Botany* 50:401-408.
- Sakamoto, S., T. Hayashi, K. Hayashi, F. Murai, M. Hori, K. Kimoto, and K. Murakami. 2007. Pre-germinated brown rice could enhance maternal mental health and immunity during lactation. *European Journal of Nutrition* 46:391-396.
- Sanacora, G., G.F. Mason, D.L. Rothman, K.L. Behar, F. Hyder, O.A.C. Petroff, R.M. Berman, D.S. Charney, and J.H. Krystal. 1999. Reduced cortical γ -aminobutyric acid levels in depressed patients determined by Proton Magnetic Resonance Spectroscopy. *Archives General Psychiatry* 56:1043-1047.
- Sandhya Rani, M.R., and K.R. Bhattacharya. 1995. Rheology of rice-flour pastes: Relationship of paste breakdown to rice quality, and a simplified Brabender viscograph test. *Journal of Texture Studies* 26:587-598.
- Schiller, J.M., S. Appa Rao, P. Inthapanya, and Hatsadong. 2006. Glutinous rice in Laos, p. 197-214, *In* J. M. Schiller, et al., eds. *Rice in Laos*. International Rice Research Institute, Los Banos, Philippines.
- Sebela, M., F. Brauner, A. Radova, S. Jacobsen, J. Havlis, P. Galuszka, and P. Pec. 2000. Characterisation of a homogeneous plant aminoaldehyde dehydrogenase. *Biochimica et Biophysica Acta (BBA)/Protein Structure and Molecular Enzymology* 1480:329-341.
- Sharif, K., and M.S. Butt. 2006. Preparation of fiber and mineral enriched pan bread by using defatted rice bran. *International Journal of Food Properties* 9:623-636.
- Shen, Y., L. Jin, P. Xiao, Y. Lu, and J.-S. Bao. 2009. Total phenolics, flavonoids, antioxidant capacity in rice grain and their relations to grain color, size and weight. *Journal of Cereal Science* 49:106-111.

- Shi, W., Y. Yang, Saihua Chen and Mingliang Xu. 2008. Discovery of a new fragrance allele and the development of functional markers for the breeding of fragrant rice varieties. *Molecular Breeding* 22:185-192.
- Shirasawa, K., S. Shiokai, M. Yamaguchi, S. Kishitani, and T. Nishio. 2006. Dot-blot-SNP analysis for practical plant breeding and cultivar identification in rice. *Theoretical and Applied Genetics* 113:147–155.
- Singh, A., P. Singh, R. Singh, A. Pandit, A. Mahato, D. Gupta, K. Tyagi, A. Singh, N. Singh, and T. Sharma. 2010. SNP haplotypes of the *BADHI* gene and their association with aroma in rice (*Oryza sativa* L.). *Molecular Breeding* 26:325–338.
- Sriseadka, T., S. Wongpornchai, and P. Kitsawatpaiboon. 2006. Rapid method for quantitative analysis of the aroma impact compound, 2-acetyl-1-pyrroline, in fragrant rice using automated headspace gas chromatography. *Journal of Agricultural and Food Chemistry* 54:8183-8189.
- Sun, J., C. Hou, and S. Zhang. 2008. Effect of protein on the rheological properties of rice flour. *Journal of Food Processing and Preservation* 32:987-1001.
- Takahashi, T., and J.-I. Kakehi. 2010. Polyamines: ubiquitous polycations with unique roles in growth and stress responses. *Annals of Botany* 105:1-6.
- Tarpley, L., and U. Roessner. 2007. Metabolomics: enabling systems-level phenotyping in rice functional genomics. p. 91-107, *In* N.M. Upadhyaya ed. *Rice Functional Genomics: Challenges, Progress and Prospects*. Springer, New York.
- Thomson, M., K. Zhao, M. Wright, K. McNally, J. Rey, C. Mojica, C.-W. Tung, A. Reynolds, B. Scheffler, G. Eizenga, M. McClung, A. Ismail, M. de Ocampo, H. Leung, C. Bustamante, and S. McCouch. In preparation. High-throughput SNP genotyping in rice using the Illumina BeadXpress platform.
- Tikunov, Y., A. Lommen, C.H.R. de Vos, H.A. Verhoeven, R.J. Bino, R.D. Hall, and A.G. Bovy. 2005. A novel approach for nontargeted data analysis for metabolomics. Large-scale profiling of tomato fruit volatiles. *Plant Physiology* 139:1125-1137.
- van Berloo, R. 2008. GGT 2.0: Versatile software for visualization and analysis of genetic data. *Journal of Heredity* 99:232–236.

- Varavinit, S., S. Shobsngob, W. Varayanond, P. Chinachoti, and O. Naivikul. 2003. Effect of amylose content on gelatinization, retrogradation and pasting properties of flours from different cultivars of Thai rice. *Starch-Starke* 55:410-415.
- Venuprasad, R., M.T. Sta Cruz, M. Amante, R. Magbanua, A. Kumar, and G.N. Atlin. 2008. Response to two cycles of divergent selection for grain yield under drought stress in four rice breeding populations. *Field Crops Research* 107:232-244.
- Verhoeven, H.A., H.H. Jonker, R.C.H. de Vos, and R.D. Hall. In press. Solid-phase micro-extraction (SPME) GC-MS analysis of natural volatile components in melon and rice, *In* N.G. Hardy and R.D. Hall, eds. *Plant Metabolomics Methods*. Humana Press, Itnaca, NY.
- Wanchana, S., T. Toojinda, S. Tragoonrung, and A. Vanavichit. 2003. Duplicated coding sequence in the waxy allele of tropical glutinous rice (*Oryza sativa* L.). *Plant Science* 165:1193–1199.
- Wheeler, M.L., and F.X. Pi-Sunyer. 2008. Carbohydrate issues: Type and amount. *Journal of the American Dietetic Association* 108:S34–S39.
- Wilkie, K., M. Wootton, and J.E. Paton. 2004. Sensory testing of Australian fragrant, imported fragrant, and non-fragrant rice aroma. *International Journal of Food Properties* 7:27-36.
- Wright, M., C.W. Tung, K. Zhao, A. Reynolds, S.R. McCouch, and C.D. Bustamante. 2010. ALCHEMY: a reliable method for automated SNP genotype calling for small batch sizes and highly homozygous populations. *Bioinformatics (Oxford)* 26:2952-2960.
- Xie, L., N. Chen, B. Duan, Z. Zhu, and X. Liao. 2008. Impact of proteins on pasting and cooking properties of waxy and non-waxy rice. *Journal Cereal Science* 47:372–379.
- Xing, S.G., Y.B. Jun, Z.W. Hau, and L.Y. Liang. 2007. Higher accumulation of [gamma]-aminobutyric acid induced by salt stress through stimulating the activity of diamine oxidases in *Glycine max* (L.) Merr. roots. *Plant Physiology and Biochemistry* 45:560-566.

- Xu, Y., S.R. McCouch, and Q. Zhang. 2005. How can we use genomics to improve cereals with rice as a reference genome? *Plant Molecular Biology* 59:7-26.
- Yokoyama, W.H. 2004. Nutritional Properties of Rice and Rice Bran, p. 595–606, *In* E.T. Champagne, ed. *Rice Chemistry and Technology*. American Association of Cereal Chemists, Inc., Minneapolis.
- Yoshihashi, T., T.T.H. Nguyen, and H. Inatomi. 2002. Precursors of 2-acetyl-1-pyrroline, a potent flavor compound of an aromatic rice variety. *Journal of Agricultural and Food Chemistry* 50:2001-2004.
- Yoshihashi T, Nguyen TTH, Kabaki N (2004) Area dependency of 2-acetyl-1-pyrroline content in an aromatic rice variety, Khao Dawk Mali 105. *Japan Agricultural Research Quarterly* 38, 105–109.
- Yu, S., Z.T. Nehus, T.M. Badger, and N. Fang. 2007. Quantification of vitamin E and γ -oryzanol components in rice germ and bran. *Journal of Agricultural and Food Chemistry* 55:7308-7313.
- Zeisel, S.H., K.A. Da Costa, P.D. Franklin, E.A. Alexander, J.T. Lamont, N.F. Sheard, and A. Beiser. 1991. Choline, an essential nutrient for humans. *The FASEB Journal* 5:2093-2098.
- Zhao, K., M. Wright, J. Kimball, G. Eizenga, A. McClung, M. Kovach, W. Tyagi, M.L. Ali, C.-W. Tung, A. Reynolds, C.D. Bustamante, and S.R. McCouch. 2010. Genomic diversity and introgression in *O. sativa* reveal the impact of domestication and breeding on the rice genome. *PLoS ONE* 5:e10780.





VITEA

Name Mrs. Chanthakhone Boualaphanh
Date of birth July 10, 1967
Place of birth Champassack province
Country Lao PDR
Marital status Married

Education

1981-1984 High school at Champassack Province
1986-1991 BSc. and MSc. In Plant selection department,
Taskent Agricultural Institut, (Former USSR)
2000-2003 MSc. in Agronomy, Department of Plant Science and
Agricultural Resources, Faculty of Agriculture, Khon
Kaen University, Thailand
2007-2011 PhD in Agronomy, Department of Plant Science and
Agricultural Resources, Faculty of Agriculture, Khon
Kaen University, Thailand

Employment

1991-present Government officer, Rice and Cash Crop Research
Centre, National Agriculture and Forestry Research
Institute, Ministry of Agriculture and Forestry,
Laos PDR

