

CONRADO N. DUEÑAS, JR.-Curriculum Vitae

Laboratory of Plant Biotechnology

Department of Biology and Biotechnology “L. Spllanzani”

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HIGHER EDUCATION AND TRAINING

2018. Master Degree in Molecular Biology and Biotechnology at the University of the Philippines Los Baños - UPLB (Philippines). Thesis title: “*Molecular characterization and grain quality of high iron transgenic IR64 events with overexpressed OsNAS2 and SoyferH1 genes*”. Supervisors: Dr. Inez H. Slamet-Loedin, Dr. Evelyn M. Tecson-Mendoza, and Dr. Antonio Laurena.

2006. Bachelor of Science in Agriculture, Major in Entomology at the University of the Philippines Los Baños – UPLB (Philippines) with 2.35/1.00. Thesis title: “*Multi-sectoral alliance for development project on organic vegetables and fruits with emphasis on insect pest control in Negros Occidental*”. Supervisor: Dr. Jose Medina Jr.

From 2006. Collaborative Research and working experience in the Genetic Transformation Laboratory (GTL) and International Network for Genetic Evaluation of Rice (INGER) at the International Rice Research Institute (Philippines). Supervisors: Dr. Inez H. Slamet-Loedin (GTL), Dr Edilberto Redoña (INGER).

TECHNICAL SKILLS

Molecular Biology, Cell biology, and Bioinformatics: extraction and purification of nucleic acids and proteins from crude to high quality; performing numerous PCR techniques (standard, RT-PCR, TAIL-PCR, HiTAIL, qRT-PCR; cloning related techniques such as using and producing competent cells and working with different cloning vectors such as TOPO blunt, TOPO XL, Promega pGEM, and others; copy number identification through southern blotting; protein quantification and protein assays such as ELISA and Western blot; oligonucleotide design for PCR and sgRNA for CRISPR-Cas9 work, sequence alignment tools, and statistical analysis using STAR program; Protoplast transformation; Leaf painting for rapid screening.

Microscopy and seed technology: Preparation of seed samples using paraffin; Sample preparation using vibratome and free hand sectioning; Microscope work using DP20 for counting protoplast cells and SZX7 for viewing and photography; simple germination tests, seed polishing using KETT mill and Grainmann machine, and plant sample (immature and mature seeds and leaves) staining using KOH, GUS staining, and Prussian blue stain technique, and seed processing and storage.

Transgenic Screenhouse and Confined Field work: Rice crossing (introgression and backcross); Rice plant phenotyping at maturity stage and biomass quantification, land preparation and fertilizer application; integrated pest, disease, and weed management.

Scientific writing and public engagement: writing of proposals to regulatory agencies, preparation of reports to funding and regulatory agencies, articles, and book chapters, poster and oral presentations and community engagement venues such as student symposiums, workshops, and interviews.

GOOD KNOWLEDGE OF ENGLISH LANGUAGE - SPEAKING AND WRITING

AWARDS AND CERTIFICATIONS

Lee Foundation Rice Research Grant Award; For Ph.D. students in South and South East Asia pursuing fields allied with rice science. This research work is focused in the biofortification of rice through the DNA-free genome editing and allele replacement methodologies. The award was granted by the Singapore-based Lee foundation through International Rice Research Institute. November 01, **2020-** October 31, **2021**.

PARFI Research and Development Award: Research Category; Los Baños Science Community Foundation Inc.; For outstanding research output on the development of biofortified rice to combat nutritional deficiencies in rural regions; *Biofortified Indica Rice attains Iron and Zinc Nutrition Dietary Targets in the Field*; International Rice Research Institute; August 4, **2017**

2016 Scientific Achievement Team Award; Iron and Zinc Biofortification Team of the Genetic Transformation Laboratory; Genetic and Biotechnology Division; International Rice Research Institution; April 20, **2017**.

Travel Grant Award, for replicated Confined Field Trial (CFT) in CIAT, Colombia; GRisP mobility fellowship for partnership and development, Granted by the Deputy Director General for Research, Dr. Achim Dobermann; October 11-November 11, **2012**.

Global Steward for Transgenic Operations Certificate; Excellence through Stewardship (<https://www.excellencethroughstewardship.org/>); IRRI, College, Los Baños, Laguna, Philippines; Lead for Module 3: Confined Field and member for module 1 (Laboratory) and 2 (Contained facilities); January 31, **2019**.

PUBLICATIONS

Trijatmiko K.R., **Dueñas C.**, Tsakirpaloglou N., Torrizo L., Arines F.M., Adeva C., Balindong J., Oliva N., Sapasap M.V., Borrero J., Rey J., Francisco P., Nelson A., Nakanishi H, Lombi E., Tako E., Glahn R.P., Stangoulis J., Chadha-Mohanty P., Johnson A.T., Tohme J., Barry G., Slamet-Loedin I.H. **2016**. Biofortified indica rice attains iron and zinc nutrition dietary targets in the field. *Scientific Reports* 6: 19792.

Oliva N., Chadha-Mohanty P., Poletti S., Abrigo E., Atienza G., Torrizo L., Garcia R., **Dueñas C.**, Poncio M.A., Balindong J., Manzanilla M., Montecillo F., Zaidem M., Barry G., Hervé P., Shou H., Slamet-Loedin I.H. **2014**. Large-scale production and evaluation of marker-free indica rice IR64 expressing phytoferritin genes. *Molecular Breeding* 33(1): 23-37.

Dueñas C., Oliva N., Mota-Bueno G.M., Slamet-Loedin, I.H. Genome engineering for enriching Fe and Zn in rice grain and increasing micronutrient bioavailability. Chapter 12, in Book: Genome engineering for nutritional improvement in crops, Wiley Editorial House, *In press*.

POSTER PRESENTATIONS TO NATIONAL AND INTERNATIONAL CONGRESSES

Dueñas C., Mota G.M., Ordonio R., Pojas, S., Trijatmiko K., and Slamet-Loedin I.H. Agromic characterization of two high Iron and Zinc events in NSIC Rc238 and BR28 in a confined field set-up. Presented at the Micronutrient Forum 5th Global Conference: Connected; 9-13 November, **2020**.

Ludwig Y., Tsakirpaloglou N., **Dueñas, C.**, Uy, L.Y., Arcillas E., Miranda I.D.P., Bueno-Mota G., Trijatmiko KR, Slamet-Loedin I.H. Site-directed nuclease 1, 2, and 3 gene editing to develop biofortified rice and to increase plant yield in elite cultivars. Presented at the 17th International Symposium on Rice Functional Genomics (ISRFG) Scientific Conference, Taipei, Taiwan, November 4-6, **2019**.

Dueñas C., Trijatmiko K., Ramos S., Malabanan P., Manzanilla M.M., Laurena A., Tecson-Mendoza E.M., and Slamet-Loedin IH. Molecular characterization and grain quality analysis of high iron transgenic IR64 events Overexpressing *OsNAS2* and *Soyferh1* Genes. Presented at the 25th Federation of Crop Science Societies of the Philippines (FCSSP) and 1st Federation of Plant Science Association of the Philippines Scientific Conference; Davao City, Davao, Philippines; 16-21 September, **2019**.

Francisco P., Pangan I.P., **Dueñas C.**, Ramos S., Slamet-Loedin IH. Promoter replacement by CRISPR-Cas9 technology editing. Presented at the 25th Federation of Crop Science Societies of the Philippines (FCSSP) and 1st Federation of Plant Science Association of the Philippines Scientific Conference; Davao City, Davao, Philippines; 16-21 September, **2019**.

Rey J.D., Javier R., **Dueñas C.**, Ramos S., Arines F.M., Borja G., Manzanilla M.M., Torrizo L.B., Swamy, MBP. Reinke R., Slamet-Loedin, I.H. Transferring iron genes to popular varieties:

Challenges and Updates. Presented at the 23rd Federation of Crop Science Societies of the Philippines (FCSSP) Scientific Conference; Clark field, Pampanga, Philippines; 12-15 May, **2015**.

Francisco P., Trijatmiko, R.K., **Dueñas C.**, Barry G., Slamet-Loedin, I.H. Overexpression of rice *Nicotianamine Synthase2* and Soybean *FerritinH1* in transgenic rice alters the expression of endogenous iron acquisition genes. 10th International Symposium on Rice Functional Genomics (ISRFG), Chiang Mai, Thailand, November 26-29, **2012**.

Arines F.M., Trijatmiko, R.K., **Dueñas C.**, Slamet-Loedin, I.H. Overexpression of nicotianamine synthase gene in transgenic rice induces the expression of deoxymugineic acid biosynthesis genes and suppresses the expression of ferritin genes. 10th International Symposium on Rice Functional Genomics (ISRFG), Chiang Mai, Thailand, November 26-29, **2012**.

Dueñas C., Oliva N, Trijatmiko K., Abrigo E, Balindong J.L., Manzanilla M.C., Chanda-Mohanty P., Barry G., Slamet-Loedin I.H. Transgenic IR64 grains with increased lysine content. Poster and Oral Presentation at the 8th Philippine Association for Plant Tissue Culture and Biotechnology (PAPTCB) Scientific Convention, Malangi, Aklan, Philippines, April **2012**. **Best paper finalist**.

Oliva N., Abrigo E., Balindong J.L., Trijatmiko K., **Dueñas C.**, Chanda-Mohanty P., Barry G., Slamet-Loedin I.H. Transgenic IR64 grains with increased lysine content. Presented at the 21st Federation of Crop Science Societies of the Philippines (FCSSP) Scientific Conference, Legazpi, Albay, Philippines, May **2011**.

Dueñas C., Poletti S., Oliva N., Manzanilla M.A., Torrizo L., Abrigo E., Zhou W., Shou X., Chanda-Mohanty P., Philiipe H., Barry G., Slamet-Loedin I.H. Analysis of IR64 Marker-free transgenic ferritin for iron fortification. Presented at the 40th Crop Science Society of the Philippines (CSSP) Scientific Conference, Davao, Philippines, March **2010**.