

Molecular Characterization and Genetic Analysis of Nutritional Components of Philippine Indigenous Pigmented Rice Germplasm

Acronym: NutrientRice

NutrientRice is a BBSRC-funded project partnering with the [Philippine Rice Research Institute \(PhilRice\)](#) and the [International Rice Research Institute \(IRRI\)](#) in the Philippines.



The primary aim is to identify rice accessions as potential donors of high nutrient and antioxidant traits with good grain quality, and to integrate the identified genetic donors into PhilRice rice breeding programmes, thereby improving the nutritional value as well as the grain quality of modern rice varieties.

The researcher leading this project is Dr Huw Jones



Jones has worked at NIAB for over 25 years. In that time his work interests have ranged from using biochemical assays to determine secondary metabolites in produce, examining molecular biology techniques as a tool in variety registration, exploring the diversity of heirloom barley varieties across the 'old world' and considering novel approaches to exploiting exotic germplasm for use in breeding programmes. He has an enthusiasm for communicating science to a range of audiences being first author on a dozen papers, presenting at scientific and technical meetings, 'outreach' events to growers and the general public, and making radio appearances. Outside work Huw can be found cycling, gardening or engaged in political debate.

International partners include:



Xavier Greg I. Caguiat, PhilRice, Philippines:

Caguiat has undertaken genetic diversity studies on various crops, including coconut, papaya, rice and eggplant; undertaking a Philippine eggplant diversity analyses which included cultivated, traditional and wild eggplant species. He has also worked on coat protein analysis of papaya ringspot virus (PRSV) in transgenic papaya. Mr Caguiat now leads on projects at PhilRice that involve analyses of whole genome sequences using next-generation sequencing, and *in silico* tools for gene discovery and comparative genome analysis between wild and mutant rice accession with resistant to bacterial leaf blight.



Tobias Kretschmar, IRRI, Philippines



Kretschmar has worked at IRRI for over 5 years. He is a molecular biologist by training with a background in molecular plant physiology. At IRRI he was initially involved in trait development for submergence tolerance, particularly focusing on the characterization of anaerobic germination in the context of direct seeded rice. He is now heading the Genotyping Services Laboratory (GSL) that, apart from providing breeders with state-of-the-art genotyping solutions, is leading the development of new breeding technologies at IRRI. His main scientific interest lies in the



translation of basic scientific findings into applied breeding tools. Through the Newton Fund Pigmented rice project he hopes to be able to utilize ancient nutritional traits of Philippine heirloom varieties for the development of modern bio-fortified rice products.

Edwige Gaby N. Mbanjo, IRRI, Philippines

Mbanjo joined the Plant Breeding Division of IRRI as a postdoctoral-fellow. Her research interests are in the area of plant genetics (population and quantitative genetics). She was a postdoctoral fellow at the Uni. of Pretoria, South Africa, in the Forest and Agricultural Biotechnology Institute. Her research involved uncovering the genomic regions underlying important traits, including growth and wood properties. Her PhD, carried out at the International Institute of Tropical Agriculture (IITA), was focused on the development of molecular tools for bananas and plantains to construct a banana genetic linkage map for trait dissection. She is also interested in the field of systems biology, which she believes could provide a holistic depiction of mechanism underlying phenotypic differences, as well as biological processes involved.

