

Category	: International Rice Research Conference
Select Theme	: Pathways to health and nutrition
Endorsement email	:
Keyword 1	: Glycemic index
Keyword 2	: Healthy food systems
Keyword 3	: Nutrient-dense rice
Title of Entry	: Improving rice quality for human nutrition and health
Presenting author	: Ondrej Kosik
Presenting author email	: ondrej.kosik@rothamsted.ac.uk
Co author 1	: Evelyn Bandonill 2, Riza Abilgos-Ramos 2, Marissa Romero 2, Nese Sreenivasulu 3
Co author 2	: Peter Shewry 1, Alison Lovegrove 1
Affiliation presenting author	: Department of Plant Sciences, Rothamsted Research, Harpenden, United Kingdom
Affiliation 1	: 2= Rice Chemistry and Food Science Division, DA-PhilRice, Science City of Muñoz, Nueva Ecija, Philippines 3= Grain Quality and Nutrition Centre, IRRI, Los Baños, Philippines
Affiliation 2	: 1= Department of Plant Sciences, Rothamsted Research, Harpenden, United Kingdom
Select only one type of presentation	: 15 minute oral presentation

Abstract : Rice is a staple food for more than half the population of the planet and is consumed in two forms; as brown rice, which is produced by removing the hull (dehusking), but more often as white rice which is produced by further polishing (milling) of the dehulled grain to remove the bran and embryo [1]. Because polishing removes most of the vitamins and minerals and up to 80% of the dietary fibre [2], white rice comprises over 90% starch with only low contents of protein, dietary fibre and micronutrients. White rice is accordingly the major source of calories in the diet of most South East (SE) Asian countries [3]. However, the high proportion of starch and relatively low dietary fibre content of white rice leads to rapid energy release in the human gastrointestinal tract, resulting in a high glycaemic index (GI). The excessive consumption of high GI foods is associated with increased risks of a range of chronic diseases including type-2 diabetes, cardiovascular disease (CVD) and some types of cancer [4]. Furthermore, the incidence of these conditions is dramatically increasing in areas where white rice is the staple food, notably SE Asia, India and China, with the prevalence of diabetes in SE Asia alone predicted to reach 120 million by 2030 [5]. It is therefore necessary to develop rice lines in which high energy content is combined with low GI. This may be achieved by combining acceptable levels of resistant starch (RS) with an increased content of the cell wall derived-dietary fibre components. Our project therefore aims to increase the dietary fibre content of rice by identifying lines with high contents of resistant starch and cell-wall-derived dietary fibre combined with good organoleptic and processing properties and to exploit these lines in national breeding programmes in SE Asia. [1] Fernando B. (2013). *J. Rice Res.* 1(2), e101. [2] ASEAN Food Consumption Database (2014). [3] <http://www.fao.org/faostat/en/#data/FBS> [4] Carbohydrates and Health, SACN London (2015). [5] <http://www.who.int/diabetes/facts> Enhanced Rice quality for Health (EnRiCH) project is funded by Newton Fund with reference BB/N013808/1.

[Read more»](#)

Uploaded Files »

No files found.

