

STORAGE CARBOHYDRATE AND CELL WALL CONTENTS, LOCALIZATIONS AND COMPOSITIONS OF CARYOPSES FROM THREE ORYZA SATIVA CULTIVARS (NIPPONBARE, NAGINA 22 AND KITAAKE) DISPLAYING DIFFERENT LEVELS OF HEAT TOLERANCE

Jean-Claude Mollet (France)¹; Alvaro Miquel (Chile)²; Gaëlle Durambur (France)¹; Youssef Chebli (Canada)³; Marc Ropitiaux (France)^{1 4}; Anja Geitmann (Canada)⁵; Susana Saez-Aguayo (Chile)²; Ariel Orellana (Chile)²;

1 - Univ Rouen Normandie, GLYCOMÉV UR4358, SFR NORVEGE, Fédération Internationale Normandie-Québec NORSEVE, Carnot I2C, RMT BESTIM, GDR Chemobiologie, IRIB, F-76000 Rouen, France; 2 - Universidad Andrés Bello, Centro de Biotecnología Vegetal, Santiago, Chile; 3 - McGill University, Department of Plant Science, MultiScale Imaging Facility, Macdonald Campus, Saint-Anne-de-Bellevue, Quebec, Canada; 4 - 4HeRacLeS (High-tech Research infrastructures for Life Sciences) CNRS UAR 2026, INSERM US 51, PRIMACEN, Univ Rouen Normandie, IBISA, IRIB, Euro-Biolmaging, F-76000 Rouen, France; 5 - McGill University, Department of Plant Science, Biomechanics of Plant Development, Macdonald Campus, Saint-Anne-de-Bellevue, Quebec, Canada;

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Abstract text: In the context of climate change, improving crop reproductive efficiency is a major challenge for sustainable agriculture and food security. Sexual plant reproduction is a key determinant of seed/grain and fruit yields/qualities, which are influenced by heat and drought stress. In the frame of the European CRISPiT project, we studied the carbohydrate content and cell wall distribution and composition of caryopses from *Oryza sativa* aus-type Nagina 22, a drought and heat tolerant cultivar, the japonica subspecies Nipponbare, a heat sensitive cultivar, and Kitaake, a model cultivar for functional genomics. Cell imaging approaches were employed to highlight the characteristics of each cultivar including SEM, cytochemical staining and immunolabelling on caryopsis sections. In addition, biochemical approaches were carried out. The sequential extraction consisted of treatments with cold water on ground de-husked caryopses and the alcohol insoluble residue was treated with DMSO 90% followed by centrifugations and EtOH precipitations of the supernatants. The insoluble residue was then incubated with imidazole-HCl, ammonium oxalate and finally KOH. After centrifugation, the KOH extract was acidified to pH 6 leading to the apparition of an insoluble residue, the supernatant and the pellet were separated. After dialysis, the resulting AIR fractions were freeze-dried, weighted and analysed by HPAEC-PAD.