P25. Role of glucosinolates on resilience to low temperatures in *Brassica oleracea*

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The literature demonstrating the role of glucosinolates in plant defense against herbivores is extensive. However, little information is available about the role of these secondary metabolites on the plant response to abiotic stresses. We took advantage of four recently developed divergent selected populations (with high glucobrassicin (HGBS) and low glucobrassicin (LGBS) and high sinigrin (HSIN), and with low sinigrin (LSIN) content) to evaluate the influence of different glucosinolate content on the plant resilience to low temperatures. Plants were grown in a growth chamber at constant 12 and 20 °C in a 14 h light/12 h dark photoperiod regime. Differences in GBS and SIN content were confirmed also at low temperatures with marginal effects in other glucosinolates. Plants from populations with high glucosinolate content show significantly higher fresh weight under low temperature than those showed by the population with low glucosinolate content, whereas not differences were observed at control temperature. To identify the metabolic changes in these populations due to exposure to low temperatures we performed a LC-qTOF metabolomics analysis. Performance of HSIN vs LSN and HGBS vs LGBS were compared using multivariate analysis (PLSDA) at both temperatures. Metabolites with a common response under both temperatures were removed to identify those ions specifically involved in low temperature response. In addition, the performance of both divergent selections was compared at 12 °C to identify the metabolites specifically responding to SIN or GBS selection. We found 12 and 6 metabolites specifically involved in the response to low temperature in the SIN and GBS selections, respectively. Some of these metabolites were putatively identified using public available databases.