previously applied drought stress in the greenhouse and studied the influence of drought on FHB severity in three differently susceptible spring barley varieties. We found strongly reduced FHB severity in susceptible varieties under drought stress. We conducted a global transcriptome analysis of barley spikes and correlated physiological stress markers such as abscisic acid with co-expressed gene networks using weighted gene correlation network analysis. These networks may help to explain common or genotype-specific responses to complex stress situations. An infection-related module contained co-expressed genes for defence, programmed cell death and mycotoxin-detoxification indicating that diverse genotypes use a similar defence strategy towards FHB albeit with different success. Further networks are highly associated with drought or genotypes, but no network is correlated with the combination of drought with infection, indicating a modular composition of single stress responses. Our analysis further (re-)discovered both established and new players in response to stress and fungal toxins and provides a route for diverse analyses of combined physiological and global gene expression data.

F5.7-1

PHENOTYPING BIOTIC-ABIOTIC INTERACTIONS AFFECTING RICE GRAIN YIELD TO DISCOVER TOLERANT GENOTYPES

MOSQUERA Gloria. (1), CORTES Lina. (1), CUELTAN Andrea. (1), RUBIO Alejandra. (1), REBOLLED0 Camila. (2), PINEDA Marcela. (1), ALVAREZ Maria F.. (1), LEACH Jan. (3), MARTIN Federico. (3)

(1) Alliance Bioversity & CIAT, Palmira, COLOMBIA; (2) CIRAD, Montpellier, FRANCE; (3) Colorado State University. Department of Agricultural Biology., Fort Collins, UNITED STATES

Text

High temperatures are known to exacerbate rice panicle blight caused by Burkholderia glumae. Our long term goal is to develop rice with increased tolerance to combined heat and disease stresses. Our first steps have been to develop a robust experimental system to test how heat stress tolerance interacts with B. glumae infection. A set of rice genotypes with contrasting tolerance to heat was inoculated with B. glumae at anthesis stage. Genotype response to bacterial infection was measured by quantifying the proportion of empty spikelets as well as the total number of grains obtained from inoculated panicles. Preliminary results identified promising rice genotypes that can tolerate heat stress and the infection by B. glumae separately. These rice genotypes will be valuable for studying the molecular mechanisms responsible for tolerance and enable development of new rice varieties that withstand combined stresses under field conditions.

P5.7-001

IT'S COMPLICATED! LINKING CA2+ SIGNALLING WITH DOWN-STREAM RESPONSES TO OSMOTIC STRESS AND PAMPS IN ARABIDOPSIS THALIANA ROOTS.

ALLAN Claudia. (1), ELLIOT Blake. (1), MAES Evelyne. (2), THOMAS Ancy. (2), HEFER Charles. (2), MORRIS Richard. (3), NOCK Volker. (1), MEISRIMLER Claudia. (1)