

[P3] Abiotic Stress for Crop Production

Thu. Sep 9, 2021 12:15 PM - 2:00 PM Room 3 (Poster) (Abiotic Stress for Crop Production)

1:15 PM - 2:00 PM

[P3-12] Does Plasticity of Anatomical Traits Influence Water Stress Tolerance in Rice?

*Nominated for Presentation Awards

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Plant roots play a vital role in acquisition of water and nutrients, their substantial plasticity to prevailing water limited environments has a greater emphasis for sustainable crop production, but these traits were often neglected due to the difficulty in handling large sample for studies. Root anatomical traits governing the radial and axial movement of water are expected to perform better in up taking and conducting water to reduce the yield gap under water stress environments. To understand the importance of root traits in mitigating water stress, an experiment was conducted in two phases. In first phase 35 rice genotypes were evaluated for various morpho-physiological and yield related traits tolerant to drought, from which a representative set of three drought tolerant and three drought susceptible genotypes were identified for phase two. In second phase the selected six (6) genotypes, three drought tolerant - Nagina - 22, Karuthamodan (Ptb 29), Chuvannamodan (Ptb 30) and three drought susceptible - Annapoorna (Ptb 35), Jyothi (Ptb 39) and Swetha (Ptb 57) were further evaluated by maintaining at 100% and 50% FC of available soil moisture. Anatomical and morphological investigations made on the roots of genotypes at their respective booting stage, showed that root length, root diameter, stele diameter, metaxylem number, metaxylem width and ratio of stele diameter to root diameter ratio were significantly varying at genotypic and treatment level ($P < 0.05$). Present study reveals that, genotypes with better plastic nature and conservative for maintenance cost performed satisfactorily under water limited conditions revealing their tolerance.