MCC P18. Exploring combined stress incited disease dynamics of chickpea x dry root rot interation

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Dry root rot (DRR) of chickpea caused by *Rhizoctonia bataticola* (Rb) has become an emerging threat to chickpea production. Under field conditions, the disease becomes highly aggressive, coincides with higher temperatures and decrease in soil moisture content (SMC). Thus establishing a sound relation between various climatic factors and DRR is necessary to design a rational strategy for combating this disease. Hence, the present study aims to quantify the roles of temperature, soil moisture and Rb as combined stress for causing infection and subsequent disease progression in chickpea. The results proved that a significant relationship exists between the biotic and abiotic elements in predisposing chickpea to DRR. Out of two temperatures (25°C and 35°C) and two soil moisture content (60% and 80% SMC) tested, the combination of high temperature (35°C) and low SMC (60%) was successful in inciting early disease symptoms in the chickpea cultivars tested. The disease severity based on percent susceptibility index (derived from modified 0-9 rating scale) and percent loss in root biomass also provided similar insights, where plants grown under the above combination displayed higher degree of root rot than the combination of low temperature (25°C) and high SMC (80%). A high positive correlation was observed between disease severity, temperature at 35°C and SMC at 60%, whereas, a negative correlation was realized for temperature at 25°C and SMC at80%. Results of the real-time qPCR based absolute quantification for fungal propagules present in the root tissues sampled at different time points also corroborated with the above findings