



Mechanistic Understanding of Tolerance to Combined Drought and *Rhizoctonia bataticola* Infection in Chickpea

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INTRODUCTION

Dry root rot (DRR) disease and drought co-occur in chickpea under field conditions

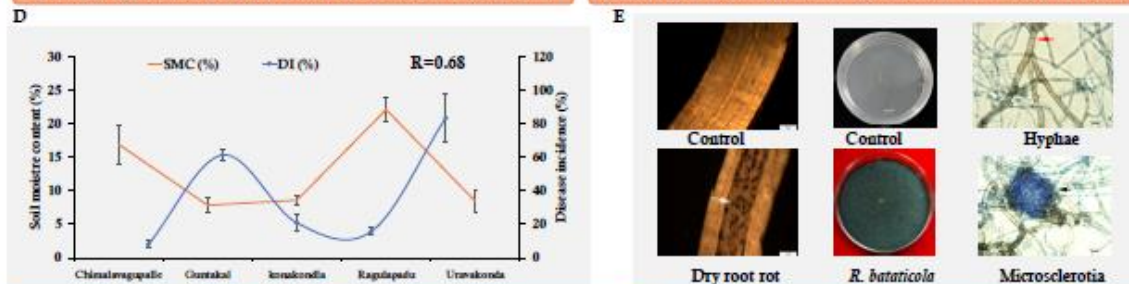
Combined stress occurrence in India



RESULTS AND CONCLUSION

Drought aggravates DRR incidence and severity in field study

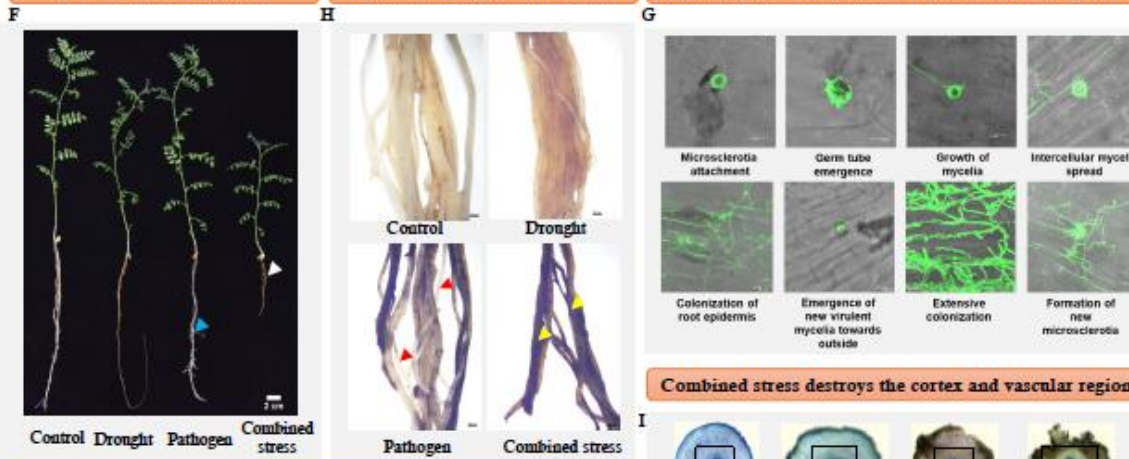
Isolation and confirmation of *Rhizoctonia bataticola* (ITCC 8635)



Effect of combined stress

R. bataticola targets lateral roots

Infection pattern of *Rhizoctonia bataticola* in chickpea root



Results

- DRR incidence and severity was aggravated by drought stress in field conditions
- Increase in DRR incidence was consistent with low soil moisture
- Plant losses lateral root number under combined stress
- Loss in lateral roots was observed only in combined stress treated plants

Conclusion

- *R. bataticola* infection and its severity is determined by the drought stress in chickpea

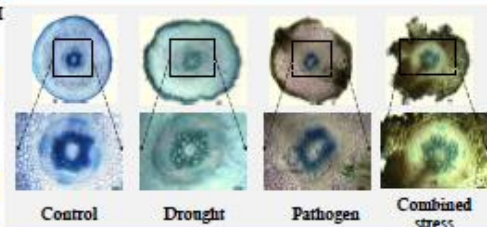
Acknowledgement

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Reference

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Combined stress destroys the cortex and vascular regions



Speculation

Going by the disease triangle, the dry root rot disease occurrence will be more prominent in the future as there is a drop in annual rainfall due to climate change. We speculate that changes in defense structures at root due to co-occurring drought stress in combined stress treatment might have predisposed the plants to severe disease.