Observation on *Bipolaris drechsleri* infectious to wheat in India

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INTRODUCTION

Bipolaris drechsleri is a novel species of microfungi described by Manamgoda et. al. (2013). *B. drechsleri* was found infectious on wheat in India under natural condition in various locations. Leaf spot symptoms are irregular brown spots, with dark margin surrounded by chlorotic halo. Different wheat variety showed different disease severity when infected by different isolates. Five isolates (MCC 1673, MCC 1746, MCC 1747, MCC 1748, MCC 1907) are isolated and identified to be *Bipolaris drechsleri*. Additional investigations on host range, survival, disease cycle is required in point of biosafety measures.

AIM

- Isolation of *Bipolaris drechsleri*
- Observation of wheat infection caused by different isolates of *B. drechsleri*.

MATERIAL AND METHODS

- *Bipolaris drechsleri* were obtained from spot blotch infected leaves or seeds from different wheat cultivars.
- Isolation of the pathogen was done using monoconidial isolation method.
- Four different wheat varieties (Sonalika, Ciano T79, Chirya 3, Yangmai 6) were infected by three of the isolates (CG80001, PBW 352, HUW 234) using spore suspension followed by spraying.
- Disease Severity was quantified using double digit scale suggested by Saari and Prescott (1975) and Eyal et. al. (1987).
- Area under the disease progress curve (AUDPC) was calculated as suggested by Shaner and Finney (1977) and Madden et. al. (2007)

CONCLUSION

- Different Isolates of *B. drechsleri* shows difference in virulence for spot blotch on wheat.
- Different varieties of wheat have difference in the level of resistance against *B. drechsleri* pathogen.
- Additional studies are required on Host-pathogen interaction between wheat and *B. drechsleri.*
- Further studies on the factors causing difference in virulence of isolates and difference in resistance or susceptibility in wheat varieties would lead to better understanding of the disease.

REFERENCES

Manamgoda et. al. (2013).

RESULTS

Five isolates were identified to be *B. drechsleri* based on combined ITS and GADH gene sequencing

Colony morphology

Colonies are measured to be 45-70 mm diameter, whitish grey at maturity, white isolates are white at maturity. Margin is irregular and reverse black with white margin.

Spore morphology

Conidiophores are macronematous, geniculate, straight or flexuous, brown septate, smooth-walled. Conidia are solitary obclavate ellipsoidal, distoseptate, golden-brown to dark brown, inconspicuous hilum. The length and width of conidia vary from 47-56 µm and 15 – 20 µm respectively

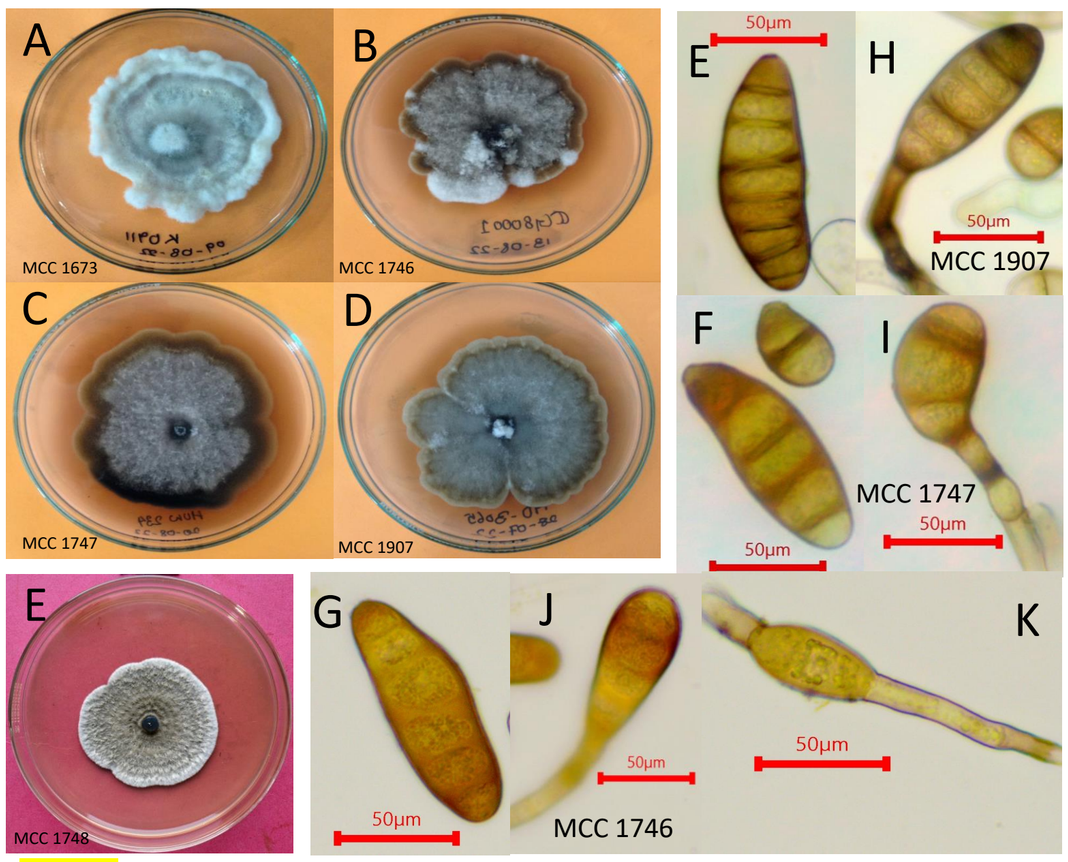

Figure 1. **colonies of the five isolates of *B. drechsleri*** [A. MCC 1673(KO 911), B. MCC 1746(CG80001), C. MCC 1747(HUW 234), D. MCC 1907(HD-3065), E. MCC 1748(PBW 352)] and **spores of three isolates** (MCC 1907,MCC 1947, MCC 1746) F-G. **Conidia**, H-J. Conidia attached to **conidiophore**, K. **spore germinating** on two poles.

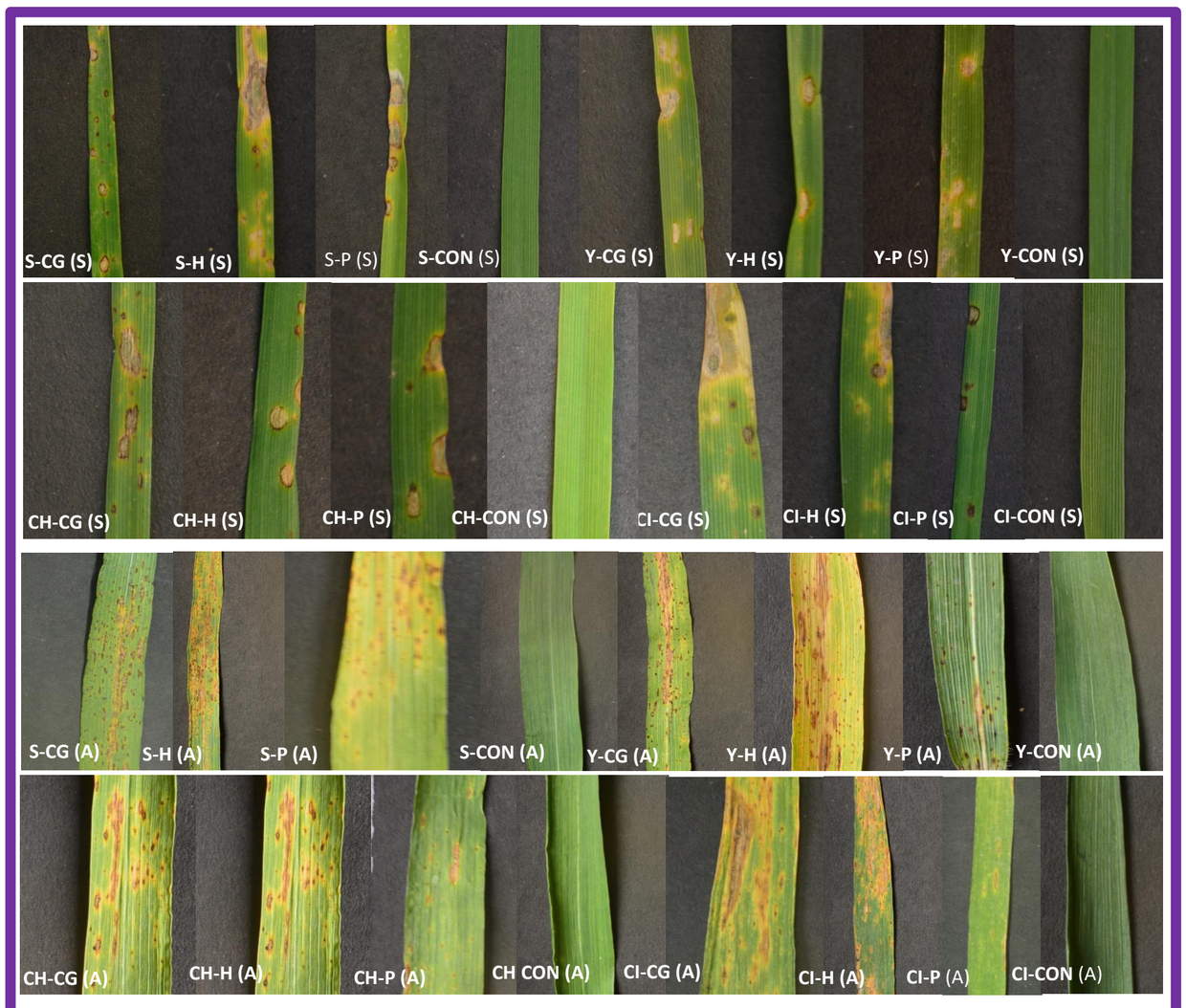

Figure 2. **Wheat leaves infected *by B. drechsleri* Isolates** . **Format:** wheat variety – isolate (stage). **Stage**: (S)- Seedling stage, (A)- Adult stage. **Wheat variety**: S- Sonalika, Y- Yangmai 6, CH- Chirya 3, CI- Ciano T79. **Isolate:** CG- CG80001, H- HUW 234, P- PBW 352.

Based on Disease Severity and AUDPC calculated:

- Out of the three isolates, **PBW 352** showed to be **least virulent** with not much difference in virulence between HUW 234 and CG80001.
- Out of the four wheat varieties infected with the pathogen, **Sonalika** was **most susceptible** followed by Ciano T79 and Chirya 3 and **Yangmai** was **most resistant** to *B. drechsleri*.