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OP-8.11: Local dispersal and epidemics of the yam anthracnose disease agent *Colletotrichum gloeosporioides*

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The fungus *Colletotrichum gloeosporioides* is responsible for yam anthracnose, the main disease of *Dioscorea alata* crops. When epidemics occur, *C. gloeosporioides* is dispersed locally via rain splashing. Splashing is nevertheless a very local dispersal process and most spores are expected to land within a few decimeters after dispersal. In this study, we investigated dispersal by rain, estimating spore removal as a function of the number of impacting drops, modeling the dispersal gradient, differentiating primary splashing from re-splash (subsequent splashing from soil during rain events), and the effect of prior soil contamination on spore dispersal distance. We assessed rainsplash dispersal in two types of experimental settings, using either a single drop generator or a rain simulator, and disposed microscope slides as spore traps. Blue cotton staining was used to differentiate primary splashing from subsequent splashing (re-splash) and spores and drops were counted under light microscope. Results showed that a minimum of 3 impacting drops was needed to remove the first dispersed spores, while 20 incident drops were enough to remove 50% of the spore stock in a necrotic lesion. It was also found that inoculum source from leaves allowed for a dispersal up to 50 cm or more, though with an exponential decrease in distance traveled from source, while re-splash is weak but contributes more and more to dispersal with increasing distance from initial source. The results also demonstrated that prior soil contamination does not contribute to dispersal between rains.



***‘to harness research innovations to
unleash the potential of yam’***

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