

Antagonistic Interaction between *Epicoccum nigrum* and *Colletotrichum kahawae*, the Causal Agent of Coffee Berry Disease

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SUMMARY

Colletotrichum kahawae Bridge and Waller, the causal agent of Coffee Berry Disease (CBD) in Africa, may cause up more than 50% of losses, if no chemical control measures are adopted. The use of antagonists is a potential non-hazardous alternative to control this disease. Several microorganisms (*Bacillus macerans*, *Phoma*, *Epicoccum nigrum*, *Aspergillus niger*, *Penicillium citrinum*, *Cladosporium* sp.) were isolated from phylloplane of arabica coffee leaves and fruits collected in Kenya coffee plantations. *E. nigrum* was selected for further studies due to its inhibitory effect on *C. kahawae* growth both in gelose media and in detached green fruits. *E. nigrum* grown in Roux bottles showed a stationary phase between 21-24 days after incubation, with a maximal dry weight at 31 days. The filtrates of *E. nigrum* obtained, at different incubation times, caused a slight reduction of *C. kahawae* mycelium growth and in conidia germination *in vitro*. The treatment of green coffee berries with *E. nigrum* filtrates, at the time of inoculation with virulent isolates of *C. kahawae* suspensions, showed that conidial germination and appressoria formation was also reduced and consequently, the number of lesions was lower and its appearance was delayed around 2 days. Different biological tests showed that the filtrates had no phytotoxicity. The biologically active compounds obtained from filtrates of *E. nigrum* were extracted with chloroform and separated by thin layer chromatography (TLC). After TLC, two zones showed fungitoxic activity for *Cladosporium cucumerinum*. For the identification of the inhibitory compounds different testes are currently under study. In the field, treatment of green berries with *E. nigrum* achieved good control of this disease when compared to levels observed with copper based fungicide.