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“Coffee Fruit Rot and its Relation to CBB and *Beauveria bassiana*”

Summary

Coffee fruit rot is a plant disease described from coffee berries in Puerto Rico. When cutting open berries with Coffee Berry Borer (CBB), internal rot was often noted in green fruit. Several species of fungi in the genus *Colletotrichum* were isolated from internal areas of coffee fruit.

The symptoms of coffee fruit rot seen on coffee berries are similar to the symptoms of coffee berry disease described on coffee in Africa at high elevations. However, there are no reports of coffee berry disease, caused by *C. kahawae*, in other places. Another disease caused by species of *Colletotrichum* is anthracnose, but it is reported on ripe coffee fruit, not green fruit. Also, the lesions of anthracnose are external, not internal. The researchers in Puerto Rico prefer to use the name coffee fruit rot because this name described all the symptoms of green fruit and ripe fruit, as well as internal and external decay. There is a complex of fungi causing anthracnose and fruit rot, though the precise species involved may vary from country to country.

In this research in Puerto Rico, over 2000 green fruits with CBB damage were collected, with *Beauveria bassiana* present in around 50%. Four species of *Colletotrichum* were isolated and studied for pathogenicity. All four were shown to cause symptoms in coffee fruits when inoculated, showing they are pathogens according to Koch’s classic postulates. A few isolates caused more external than internal coffee fruit rot. Pathogenicity of the fungi was tested by placing fungi in green fruit in the lab and in the field. These inoculations produced symptoms on green fruit, and the fungi were reisolated from symptomatic tissue.

Other experiments demonstrated that CBB can carry fungal spores on its body to infect coffee fruit where CBB penetrates. Additional experiments showed that coffee fruit rot is less likely when *B. bassiana* is present. This gives growers an additional motive to spray with *B. bassiana*: in addition to controlling CBB, it reduces coffee fruit rot anthracnose, both directly and indirectly. Directly because CBB damage makes fruits more susceptible to rot, and indirectly because *B. bassiana* competes with the rot pathogens.

This research was recently published. It was part of the PhD thesis of Luz M. Serrato-Diaz. To see the abstract, go to this link:

<https://apsjournals.apsnet.org/doi/abs/10.1094/PHYTO-02-20-0057-R?journalCode=phyto>

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