

Pathogen-Induced Systemic Acquired Resistance in Coffee

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SUMMARY

Coffee is the largest traded commodity in the world market after oil and the earnings from coffee trade sustain the economics of many developing countries producing this crop. A major disease causing economical significant crop losses in coffee is leaf rust caused by *Hemileia vastatrix*. Coffee-leaf rust relationship is one of the well studied host pathogen systems to understand the resistance- virulence interactions. The gene-for gene model was utilized to explain the manifested interactions of coffee and leaf rust. Our recent research revealed interesting deviations from this mechanism. Hibrido de Timor (Spontaneous hybrid of Arabica and Robusta) and other hybrids derived from interspecific crosses were exploited commercially in many coffee-producing countries. New races of rust fungus were reported from these hybrids that express vertical resistance. Present paper describes the incidence and infectivity of a new race on two differential hosts *C. congensis* and Kawisari and the operation of systemic acquired resistance (SAR) defense mechanism in *Coffea* was also proposed in the light of these studies. *Coffea canephora*, *C. congensis* and *C. liberica* were believed to have contributed genes to some breeding stocks of *C. arabica*. In our studies, spores collected from the hostdifferentials, *C. congensis* (B-type) and Kawisari (Natural hybrid of *C. arabica* and *C. liberica*, M-type) failed to re-infect the respective hosts as well as the other differentials carrying the genes from the above mentioned species of *Coffea*. This is a pointer in the direction of SAR playing an important role in the resistance of coffee to leaf rust. From our various observations in inoculation experiments, it is evident that systemic acquired resistance against leaf rust is operating in the diploid species of *Coffea* and interspecific hybrids at a higher level than in tetraploid *C. arabica*. This is the first record of occurrence of SAR in coffee.