

Fighting against Coffee Wilt Disease: Uganda wild *C. canephora* Genetic Diversity and its Usefulness

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SUMMARY

Coffee wilt disease (CWD) caused by *Fusarium xylarioides* appeared in 1993 in Uganda and has become a serious problem of coffee production. From the 1940's to 1960's the disease caused considerable destruction to *C. canephora* in Central and West Africa. This disease was effectively controlled by uprooting and planting resistant varieties. For developing wilt resistant varieties in Uganda, wild *Coffea canephora* trees from Kibale and Itwara primary forests were studied together with cultivated genotypes of nganda and erecta phenotypes and other cultivated genotypes from Kalangala Islands in Lake Victoria. The genotypes were analyzed for genetic diversity using 24 SSR markers covering many parts of *C. canephora* genome. These studies found significant genetic differences between Kibale, Itwara, Kalangala and a group constituted of nganda and erecta genotypes. A comparison of Ugandan genotypes with known *C. canephora* diversity groups using 18 of the SSR markers revealed that Ugandan genotypes constitute a new diversity group in the species. Therefore it was interesting to test this Ugandan material for resistance to coffee wilt disease. Resistances tests were performed using a field isolates of *Fusarium xylarioides* on open pollinated progenies of some of Kibale, Itwara, Kalangala and Nganda and erecta individuals studied for genetic diversity. Results of these tests revealed presence of resistance among genotypes from all sources and significant genetic differences between sources. High variability between progenies within each source was also detected. In this paper importance of this diversity in developing improved coffee varieties is discussed