

Mode of Penetration and Symptom Expression in Robusta Coffee Seedlings, Inoculated with *Gibberella xylarioides*, the Cause of Coffee Wilt Disease in Uganda.

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SUMMARY

Coffee wilt disease caused by *Gibberella xylarioides* (*F. xylarioides*) is the most destructive disease of robusta coffee (*Coffea canephora* Pierre) in Uganda. Robusta is a major export crop and foreign exchange earner for Uganda. Control of the disease has been hampered by lack of information on the etiology of the pathogen, its epidemiology and cultural practices that influence spread of the disease. The goal of this study was to determine how the fungus infects the host plant and subsequent symptom development. Inoculation experiments were conducted using susceptible robusta coffee seedlings of 6-8 months old, under screen house conditions from 2002-2003 to establish mode of penetration of the host by the pathogen. Wounded and unwounded stems, leaves and roots were inoculated with a spore suspension containing 1.3×10^6 spores/ml. Stems were inoculated at 3 points/positions along the stem (stem base, half way and just below the growing point). Roots were inoculated by dipping bare roots of seedlings in similar spore suspension and by drenching. Unwounded inoculated seedlings remained asymptomatic. Seedlings inoculated after wounding at the stem bases and those inoculated by root dip developed systemic infection of CWD and attained highest wilt incidence and mortality. In seedlings where inoculations were done just below the growing points, these original growing points wilted and dried up. However, one or two new shoots were produced just below the inoculation points and no mortality occurred. No infection or symptoms occurred in leaf inoculations. In general, inoculations on the aerial plant parts in the absence of wounds resulted in no infection. Wounding in the lower half of plants in the presence of inoculum and favourable environmental conditions resulted in development of wilt symptoms on more seedlings than those inoculated on the upper plant parts. These experiments confirm that infection by *G. xylarioides* largely occurs through wounds on the roots and lower parts of stems. Wounding of plants under field conditions normally occur during field operations such as weeding by hoeing, slashing and pruning, which are likely avenues for infection by the wilt pathogen.