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Quantitative Trait Loci (QTL) associated with resistance to *Fusarium oxysporum* f. sp. cubense race 1 in bananas (*Musa spp*.)

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Fusarium oxysporum f. sp. cubense (Foc) is a disease that attacks bananas causing great economic losses to banana production worldwide. Conventional banana breeding to introgress resistance from wild relatives to susceptible cultivars is complicated and takes a long time. Markers assisted selection is a modern tool thought to over some barriers of banana breeding by increasing the breeding efficiency and shortening the breeding period. The aim of this study was to genotype two unrelated mapping populations developed Foc race 1 resistance and identify markers for analysis of Foc race 1 resistance QTL. Two F1 mapping populations were developed for Foc race 1 resistance: First population of 140 hybrids, by crossing a resistant Monyet with a susceptible Kokopo and the second of 138 hybrids by crossing a susceptible Mshale with a resistant Calcutta 4. The parents contrasting for Foc race 1 resistance were screened using IRAP, ISSR, and SSR markers. IRAP primer GyLTRev had the highest polymorphism of 76.9% between Mshale and Calcutta 4 parents and 69.2% among their F1 hybrids and 64.3 % between Monyet and Kokopo parents of and 42.9% their F1 hybrids among all the primers. One major QTL associated with Foc race 1 in an F1 population of Monyet x Kokopo was mapped at linkage groups 1 (LG1) with a LOD score of 4.0 using 32 polymorphic markers. Results in this study should be useful for further elucidating the mechanism of resistance to Fusarium wilt and in the development of molecular markers.

Biography

Ivan Kabiita Arinaitwe is a banana breeder at the National Banana Research Programme of National Agricultural Research Organisation (NARO)-Uganda. Currently he is pursuing his Doctorate Degree in Genetics and Molecular Biology under Gates Foundation Scholarship and University (3rd year) at the University of Malaya pursuing of Malaya, Malaysia

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