

Project Summary

Title	Unraveling the Vector-transmission Biology of the Ipomovirus <i>Sweet Potato mild mottle virus</i> (Potyviridae) in Cultivated Sweetpotato (<i>Ipomoea batatas</i> Lam.)
PI	Dr. Arthur K. Tugume Plant Virology Genetics Plant breeding Biotechnology Department of Biology, School of Biological Sciences, College of Natural Sciences, Makerere University P.O. Box 7062 Kampala - Uganda Tel: +256-772-514841, +256-713-514841, +256-704-514841 Email: aktugume@gmail.com ; aktugume@botany.mak.ac.ug ; tugumeka@yahoo.com
Co-researchers	Dr. A.K. Tugume Department of Botany, Faculty of Science, Makerere University, Uganda. Dr. S.B. Mukasa Department of Crop Science, Faculty of Agriculture, Makerere University, Uganda. Dr. C.A. Omongo National Crop Resources Research Institute (NaCRRI), Namulonge, Uganda.
Purpose	The main objective of this study is to identify strategies for the management of SPMMV based on SPMMV vector transmission biology in sweetpotato.
Project Summary	<i>Sweet potato mild mottle virus</i> (SPMMV; genus <i>Ipomovirus</i>) ranks third in importance among the viruses threatening cultivated sweetpotato in the Lake Victoria basin of East Africa. An earlier study showed that SPMMV is transmitted by the whitefly, <i>Bemisia tabaci</i> . However, subsequent studies over three decades have not confirmed the whitefly-transmissibility of SPMMV. In East Africa, the odds of co-occurrence of SPMMV and the whitefly-transmitted <i>Sweet potato chlorotic stunt virus</i> (SPCSV; genus <i>Crinivirus</i>) are low and statistically insignificant, yet both viruses were previously reported to be whitefly-transmitted in sweetpotato. This may suggest that SPMMV and SPCSV are transmitted by different biotypes or species of whiteflies, or may reflect differences in whitefly transmission efficiencies of SPMMV and SPCSV. Moreover, co-infections of SPMMV and the aphid-transmitted <i>Sweet potato feathery mottle virus</i> (SPFMV; genus <i>Potyvirus</i>) in sweetpotato crops in East Africa are up to 3-times more

	common than infections of SPMMV alone. This observation seems to imply that SPFMV facilitates aphid-transmission of the non-aphid transmissible SPMMV. In the sweetpotato fields, the epidemiological relationship between incidence of SPMMV and its potential vectors is also unknown. Knowledge of the vector(s) transmitting plant viruses and their field epidemiology is essential for designing and implementing effective plant virus disease control measures, but this knowledge is missing for SPMMV. Therefore, the studies proposed here aim at elucidating vector transmission biology of SPMMV in cultivated sweetpotato by investigating possible involvement of different biotypes and/or species of whiteflies and aphids.
Country and Specific Location(s)	Uganda
Participating Institutions	Makerere University, National Crop Resources Research Institute (NaCRRRI)
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