

ABSTRACT

Cassava brown streak disease and cassava mosaic disease epidemiologies in farmer's seed systems of the eastern D.R. Congo: trends and determinants

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Vegetatively propagated crops are particularly sensitive to disease dissemination through the seed system. Strict phytosanitary measures can be instrumental to limit the impact of diseases as illustrated by the potato seed system in Europe.

Our research aims at studying the cassava seed system, a vegetatively propagated staple crop in the tropics, and develop mitigation measures to reduce the impact of viral diseases in cassava-producing regions.

In total, 250 cassava farmers were surveyed and 246 cassava fields sampled in the Uvira territory/eastern D.R. Congo from April to October 2019. Specific social, economic and ecological parameters were used to categorize the study area into sites.

Our analysis indicates that several characteristics of the cassava seed system could contribute to determining the occurrence of CBSV and CMD symptoms in farmers' fields, including the level of education of farmers, the practice of livestock farming activity and their accessibility to information from supporting agents ($P\text{-Chi} > 0.001$). Results further revealed that CBSV incidence in farmer fields was influenced by the characteristics of sites considered ($P\text{-F} > 0.001$), while CMD incidence was depending on the origins of cuttings used for plantation and the severity of CBSV symptoms ($P\text{-F} > 0.001$).

Cross-sectional understanding of local parameters governing the epidemiology of CBSV and CMD are of key importance for developing tools and strategies to implement a robust and sustainable cassava seed system. Linking these findings to the molecular analyses of the cassava virome will be carried out to better understand the epidemiology of these viruses and their association with symptoms.

References

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