

# Development and Evaluation of Novel Diagnostic Tests for African Yam Viruses

Ruth O. Festus<sup>1</sup>; Goncalo Silva<sup>1</sup>; Susan E. Seal<sup>1</sup>

<sup>1</sup> Natural Resources Institute, University of Greenwich



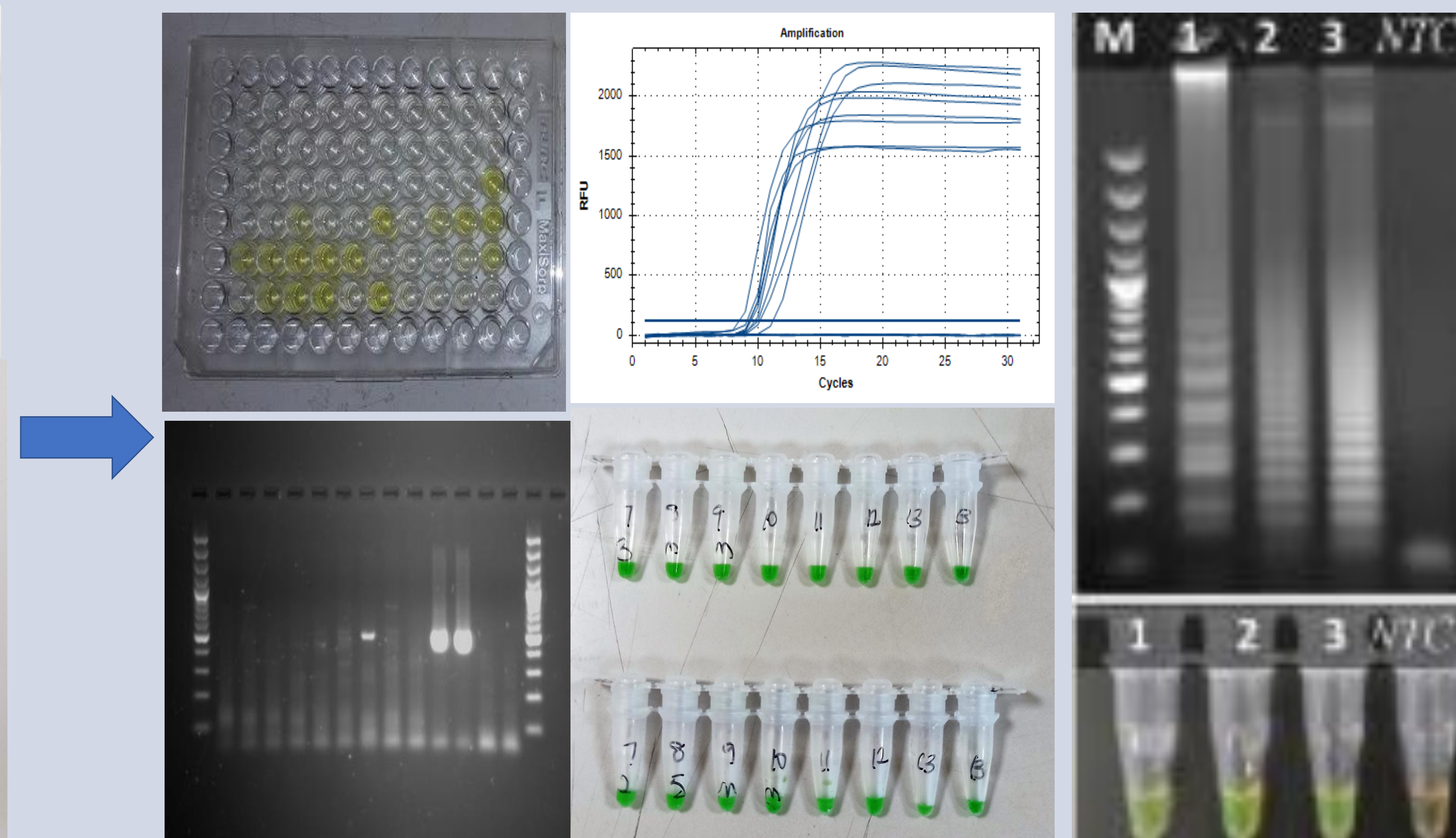
## Background

- The world population is forecast to reach 9.8 billion in 2050 (UNDESA report, 2017). This poses significant threats to **food security** globally.

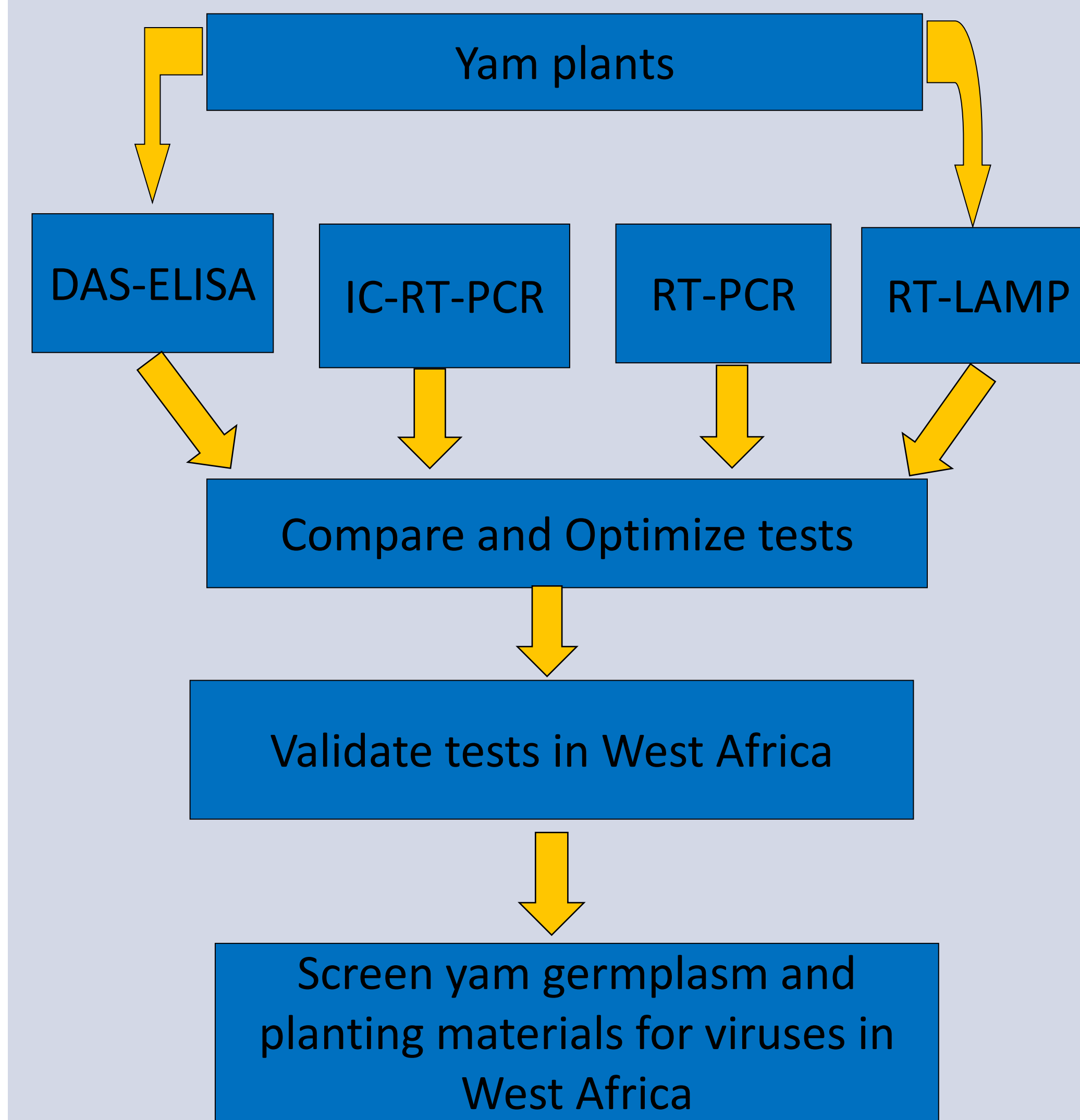


- Yam** (*Dioscorea* spp.), a staple food in the tropics and subtropics, plays a significant role in people's food security and livelihoods in West Africa (Asiedu and Sartie, 2010).
- Viral diseases** are a major constraint to yam production threatening income and food security in this region.

- The **development of rapid and sensitive diagnostic tools** is essential to control virus spread and assist in the production of virus-free yam plants.



## Methods



## Expected Results

- Develop and validate **diagnostic tools** for virus detection in yam that support the production of **virus-free yam plants**
- The development of a cost-effective and reliable **next generation sequencing workflow** for the identification and characterization of yam viruses.

## Aims

- Develop, optimize, and validate a range of diagnostic tests for economically important yam viruses in West Africa.
- Identify and characterize novel yam viruses using high throughput sequencing and bioinformatics.

## Study setting

- The lack of a **formal seed system** and **high costs** associated with seed yam production is a **significant constraint to yam productivity**.
- There is a need to increase the production of **high-quality seed yam**, enhancing crop productivity and **food security**.
- The development of **robust diagnostic tools** will certify that the mass propagated **seed yam is clean** (i.e virus-free) and prevent dissemination of viruses in the field.

## Key findings

- Optimization and validation of routine tests for yam viruses.
- Identification and characterization of new yam viruses



## Conclusions

- The **accurate and timely detection** of yam viruses will be important for the deployment of appropriate and timely management strategies.
- An analysis of the accuracy, sensitivity, and cost-effectiveness of diagnostic methods will aid in the selection of the most appropriate tool for routine testing of yam viruses.

For more information, contact:

**Ruth Oluwatosin Festus**

Postgraduate Research Student  
Natural Resources Institute, UK  
[r.o.festus@greenwich.ac.uk](mailto:r.o.festus@greenwich.ac.uk)

