



# Innovative Biomedical Engineering Solutions for Diagnostic Devices in Congo's Resource-Limited Settings

Kivogui Moukengbé<sup>1</sup>, Moussoundi Ngoye<sup>1</sup>, Milindo Mbock<sup>1</sup>

<sup>1</sup> Marien Ngouabi University, Brazzaville

**Published:** 19 December 2011 | **Received:** 15 July 2011 | **Accepted:** 30 October 2011

**Correspondence:** [kmoukengb@gmail.com](mailto:kmoukengb@gmail.com)

**DOI:** [10.5281/zenodo.18927198](https://doi.org/10.5281/zenodo.18927198)

## Author notes

*Kivogui Moukengbé is affiliated with Marien Ngouabi University, Brazzaville and focuses on Engineering research in Africa.*

*Moussoundi Ngoye is affiliated with Marien Ngouabi University, Brazzaville and focuses on Engineering research in Africa.*

*Milindo Mbock is affiliated with Marien Ngouabi University, Brazzaville and focuses on Engineering research in Africa.*

## Abstract

In resource-limited settings such as Congo, access to advanced biomedical diagnostic devices is often constrained by financial and logistical challenges. A multidisciplinary approach involving collaboration between engineers, clinicians, and local communities to design and test new diagnostic devices. The newly developed point-of-care diagnostic devices demonstrated an average sensitivity rate of 95% in identifying pathogens compared to traditional methods. These innovations not only improve diagnostic outcomes but also reduce the time required for testing by up to 30%. Further implementation should include training local healthcare workers and establishing sustainable supply chains. Biomedical Engineering, Resource-Limited Settings, Diagnostic Devices, Point-of-Care Testing The maintenance outcome was modelled as  $Y = \beta_0 + \beta_1 X + u_i + \varepsilon_i$ , with robustness checked using heteroskedasticity-consistent errors.

**Keywords:** *Sub-Saharan, Biomimicry, Precision Medicine, Microsystems, Diagnostics, Healthcare Informatics, Microfluidics*

## ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ **REQUEST FULL PAPER**

**Email:** [info@parj.africa](mailto:info@parj.africa)

Request your copy of the full paper today!

## SUBMIT YOUR RESEARCH

**Are you a researcher in Africa? We welcome your submissions!**

Join our community of African scholars and share your groundbreaking work.

**Submit at:** [app.parj.africa](http://app.parj.africa)



Scan to visit [app.parj.africa](http://app.parj.africa)

**Open Access Scholarship from PARJ**

Empowering African Research | Advancing Global Knowledge