

Editorial

Molecular Frontiers in Modest Labs: Phage Research in Low-Income Settings

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The establishment of the *World Journal of Experimental Biosciences* marks a significant milestone for researchers worldwide. For those of us working in low-income countries, it offers a rare platform to voice not only our scientific findings but also the silent struggles behind them. As a former PhD student in India and now a mentor in Ethiopia (Africa), I write this editorial to reflect on the challenges and quiet triumphs of conducting molecular microbiology, especially phage research, in modest laboratories.

1. The Mirage of Molecular Access

Molecular biosciences promise precision, speed, and transformative insights [1]. Yet in many low-income settings, this promise remains a mirage. Basic infrastructure, including PCR machines, sequencing platforms, biosafety cabinets, and shaker incubators, is often absent or outdated. Even when funding is secured, the path to utilization is troubled with hurdles: no local suppliers, rigid procurement procedures, and customs delays that endure the shelf life of reagents and other supplies. Sometimes, the budget arrives like rain on thirsty soil, but the seeds are missing, and the season slips away.

2. Phage Research: A Local Beacon

In this landscape, bacteriophages offer a beacon of hope. They are natural, cost-effective, and abundant viruses in various environments. My students and I have explored phages targeting *Klebsiella pneumoniae* [2], *E. coli*, *Pseudomonas aeruginosa*, and *Acinetobacter baumannii*, pathogens of rising concern in our hospitals as well as globally [3,4]. Using simple plaque assays, basic microscopy, and locally isolated strains, we have managed to generate meaningful data despite limited molecular tools. Phage research thrives on creativity. It teaches students that science is not only about equipment, but about curiosity, adaptation, and perseverance.

3. The Invisible Bottlenecks

Beyond infrastructure, the absence of a scientific market itself is a bottleneck. Expendables like Petri dishes, agar, and antibiotics are often unavailable locally. Non-expendables, such as incubators and centrifuges, are aging or missing. Even when funds are available, purchasing procedures are slow and misaligned with the urgency of experimental work. *In low-income labs, time is not just money—it is microbial growth, missed detection, and lost opportunity.*

4. A Call for Contextual Science

To bridge this gap, we need more than equipment; we need empathy. Journals and funders must support locally adapted innovation. Editorial boards must amplify voices from modest labs, not only for equity but for scientific richness. Feasibility should be valued alongside novelty. Collaboration must be built on mutual respect, not paternalism.

5. Closing Reflection

Phage research in modest labs is like chasing comets with candlelight—fragile, flickering, but still reaching for the stars. It is a testament to the human spirit, the power of mentorship, and the quiet resilience of science under constraint. As *World J Exp Biosci* (<https://journals.uniscipub.com/Wjeb>) begins its journey, may it become a journal that not only publishes data but also honors the stories behind it.

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