

Review of: "Evaluation of Ambient Air Quality Levels at Various Locations within Lead City University, Ibadan"

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Potential competing interests: No potential competing interests to declare.

This is an interesting study, however, the paper requires major revision and second review before it could be considered for publication. It lacks a lot of details and is not at publishing level at this stage.

Please see below for detailed comments:

Abstract:

It is impossible to overestimate how much air pollution affects the health and happiness of students.

Comment: I think the author means here 'estimate'. Also, not sure how air pollution affects happiness?

Based on this, evaluation of ambient air quality (i.e., temperature, relative humidity (RH), CO₂, and particulate matter (PM_{2.5})) at various locations within Lead City University, Ibadan, is essential.

Comment: Based on what evaluation? Why is it essential to monitor temp, RH, CO₂ and PM? That is not clear.

Ambient concentrations of carbon monoxide (CO), carbon dioxide (CO₂), relative humidity (RH), temperature (TEMP), and particulate matter (PM) were recorded from 15 locations across Lead City University over a two-week period.

Comment: In previous paragraph CO was not mentioned and here it is. Also in previous paragraph PM_{2.5} was mentioned and here it just says PM, which sizes?

The findings also show that afternoon CO₂ levels range from 468.5 ppm to 971.6 ppm, with Location 13 having an unusually high average. Morning CO levels ranged from 4.1 µg/m³ to 49 µg/m³, with location 13 showing an outlier at 184.2 µg/m³.

Comment: Why use different units for CO₂ and CO? Please use the same units, otherwise it is difficult to compare and also provide some reference with regard are these values, it says they are within acceptable ranges, but what are the acceptable ranges?

Introduction

The impact of air pollution on the health and well-being of university populations cannot be overstated.

Comment: However, why would university environment be more problematic than any other urban environment? What is it about university environment, is it the large number of people in small area? Laboratory activities do produce specific pollution, eg toxic gases, however, that isn't being measured in this paper, so I am not sure how laboratory activities will contribute to increased CO and CO₂ production, unless there are a lot of experiments which produce CO and CO₂ gases.

Some of the most common air pollutants include particulate matter (PM), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), carbon monoxide (CO), ozone (O₃), lead (Pb), and volatile organic compounds (VOCs).

Comment: Please use correct formulas for chemicals, i.e., use subscripts. Also, why describe SO₂, NO₂, O₃, Pb, and VOCs in detail if they are not being measured in this study? Please take out those sections.

Main Objective

The main objective of this study is to assess the ambient air quality at different areas within Lead City University, Ibadan.

Comment: This is not the usual way for a journal paper to have a section called 'Main Objective'; most journal papers are composed of: Abstract, Introduction, Materials and Methods, Results, Discussion, Conclusion. Also, please remove 'levels.'

Materials and Methods

Lead City University occupies a sizable campus with well-maintained facilities. The campus encompasses various academic buildings, administrative offices, lecture halls, laboratories, libraries, and student hostels. The university offers a wide range of undergraduate and postgraduate programs across multiple disciplines, including arts, sciences, social sciences, management sciences, and engineering.

Comment: It would be more informative to know the size of the land occupied by the university campus and how many students and staff, not just what buildings and faculties are present.

Areas or zones within Lead City University were selected as sampling locations. These areas were representative of the various activities and potential sources of air pollution within the university, such as the school entrance gate, school exit gate, library, hospital, basketball pitch, workshop, car park, radio station, Senate College of Medicine, Pharmacy/Nursing/EHS/Chew, chapel, dumpsite, male hostel, and female hostel.

Comment: There is a hospital on campus? That was not mentioned in the previous paragraph. I think the previous paragraph should list ALL buildings and facilities on campus.

Sampling was conducted at different times (morning and afternoon) to capture variations in air quality. The frequency and duration of sampling were determined based on factors such as diurnal variation in air quality and the objectives of the study. Adequate sampling periods were established to obtain representative measurements at each sampling point.

Comment: Please provide specific information, i.e., what times were chosen, what frequency. What does it mean that 'adequate sampling periods were established'? What were those periods? Also, there is a lot of repetition in this section; no need to explain what CO, CO₂, and PM are again, as it was already done in the Introduction. It would be more important to provide here what units were used for each parameter.

Air quality detector (capable of measuring CO₂, CO, temperature, relative humidity, and particulate matter).

Comment: Please provide the model and name of the detector.

Results

Comment: Tables must provide units for each parameter. Figures must provide labels for axes and units.

Summary, Findings, and Conclusion

Comment: Somewhat difficult to follow this section because the discussion doesn't differentiate between indoor and outdoor results. This whole section needs to be re-written with clear distinction between indoor and outdoor results. Also, there needs to be a link made between temperature and pollution.

The findings provide valuable information about environmental conditions, offering a glimpse into the variability and nuances of the recorded parameters. Hence, understanding these findings can contribute to informed decision-making in areas ranging from climate monitoring to public health and safety.

Comment: Please provide what type of changes could and should be made to improve the quality of indoor and outdoor air after this study?

References

Comment: Please order references using numbers.