RESEARCH QUESTIONNAIRE!🎓🤞☘️!☘️🎓

CHAPTER 1 (THE PROBLEM) QUESTIONS

1. What is your research problem?

Answer:
The research problem focuses on determining the effectiveness of pyrolyzed Lakatan banana peel fertilizer compared to commercial fertilizer and no fertilizer on tomato plant growth.

Supporting study:
According to Ojha et al. (2020), banana peel extract improves seedling growth of vegetable crops, showing its potential as organic fertilizer.

2. Why is your study important?

Answer:
This study is important because it provides an eco-friendly and low-cost fertilizer alternative.

Supporting study:
According to Niazi et al. (2023), excessive use of chemical fertilizers can damage soil fertility and microbial communities.

3. What is the research gap?

Answer:
There is limited research directly comparing banana peel fertilizer with commercial fertilizer on tomato plant height.

Supporting study:
According to Sikdar et al. (2023), banana peel biochar improves tomato growth but was not compared to commercial fertilizer.

4. What is your general objective?

Answer:
To determine the effect of different fertilizers on tomato growth.

Supporting theory:
According to Asadu et al. (2024), fertilizers directly influence plant growth and productivity.

5. What are your specific objectives?

Answer:
To compare plant height, stem diameter, and number of leaves.

Supporting study:
According to Arshad et al. (2024), these are reliable indicators of plant development.

6. Who benefits from your study?

Answer:
Farmers, students, gardeners, and researchers.

Supporting study:
According to Liu et al. (2024), organic fertilizers help sustainable agriculture.

7. What is your hypothesis?

Answer:
Null hypothesis states no significant difference between treatments.

Supporting theory:
According to research statistical principles (Montgomery et al.), hypothesis testing determines treatment differences.

8. What theory supports your study?

Answer:
Liebig's Law of the Minimum.

Supporting theory:
According to Liebig, plant growth depends on the most limited nutrient.

9. How does the theory connect to your research?

Answer:
Banana peel fertilizer provides lacking nutrients needed by tomatoes.

Supporting study:

According to Haque et al. (2023), banana peel fertilizer improves nutrient availability.

10. Why focus on tomato plants?

Answer:
Because they are sensitive to nutrient changes.

Supporting study:
According to Alam et al. (2021), fertilizers improve tomato height and yield.

CHAPTER 2 (REVIEW OF RELATED LITERATURE)

11. What local study supports your research?

Answer:
Organic fertilizers can perform similar or better than commercial fertilizers.

Supporting study:
According to Conde and De Asis (2021), organic fertilizers improved tomato fruit weight.

12. What foreign study supports your research?

Answer:
Biochar improves soil quality.

Supporting study:
According to Lehmann et al. (2019), biochar improves nutrient retention and soil aeration.

13. What nutrients are found in banana peels?

Answer:
Potassium, phosphorus, calcium, and magnesium.

Supporting study:
According to Haque et al. (2023), banana peel biochar contains essential plant nutrients.

14. Why is biochar effective?

Answer:

Because it improves soil structure.

Supporting study:
According to Liu et al. (2020), biochar increases plant biomass and height.

15. What makes organic fertilizer sustainable?

Answer:
It reduces chemical fertilizer dependence.

Supporting study:
According to Balkrishna et al. (2024), organic fertilizers support sustainable nutrient management.

CHAPTER 3 (METHODOLOGY)

16. What research design did you use?

Answer:
Quantitative experimental design.

Supporting theory:
According to Creswell et al., experimental research determines cause-effect relationships.

17. Why experimental design?

Answer:
To test fertilizer effects.

Supporting theory:
Experimental design allows control of variables.

18. What are your independent variables?

Answer:
Fertilizer treatments.

Supporting theory:
Independent variables are manipulated factors (Kerlinger et al.).

19. What are your dependent variables?

Answer:
Plant height, stem diameter, and leaves.

Supporting study:
According to Arshad et al. (2024) these measure plant growth.

20. Why control environmental factors?

Answer:
To avoid bias results.

Supporting theory:
Controlled variables increase validity (Fraenkel et al.).

21. Why same soil type?

Answer:
To maintain consistency.

Supporting study:
According to Torres-Osorio et al. (2024) uniform soil improves experiment reliability.

22. Why same watering schedule?

Answer:
To ensure equal growth conditions.

Supporting study:
According to Gillette (2025) proper watering ensures nutrient uptake.

23. Why same plant variety?

Answer:
To reduce variability.

Supporting theory:
Uniform samples improve accuracy.

24. How did you collect data?

Answer:
Measuring height, diameter, and leaves.

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