

REVIEWER'S REPORT

Manuscript No.: IJAR-59124

Title: MICROCALORIMETRIC ASSESSMENT OF THE BIODEGRADATION KINETICS OF DIETHYL PHTHALATE AND DIBUTYL PHTHALATE BY PURE MICROBIAL CULTURES.

Recommendation:

Accept as it is

Accept after **minor revision**

Accept after major revision

Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality		Good		
Techn. Quality		Good		
Clarity		Good		
Significance		Good		

Reviewer's ID: JPR- Dr G. Renuka

Detailed Reviewer's Report

The manuscript addresses an important environmental issue and presents microcalorimetry as a promising tool for monitoring phthalate biodegradation. However, some important points require clarification before publication.

- Methodology:** Provide complete details of microbial strains, inoculum preparation, controls, and experimental conditions.
- Controls:** Include appropriate abiotic, medium-only, and ethanol solvent controls to confirm that heat production and PAE removal are due to microbial activity.
- Kinetic analysis:** The authors should provide the equations used for first-order kinetics, inhibition ratio, IC₁₀, IC₅₀, and IC₉₀, along with statistical confidence intervals.
- Data consistency:** Some degradation percentages and optimum concentrations reported in the Abstract, Results, and Discussion appear inconsistent and should be carefully checked.
- Metabolite confirmation:** The reported intermediates (MEP, MBP, phthalic acid, and protocatechuic acid) should be supported by appropriate analytical methods such as HPLC or GC-MS.
- Microcalorimetry:** Explain clearly how lag phase, P_{max}, k, t_{1/2}, and total heat output were calculated and how heat production was correlated with actual PAE degradation.

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7. **Statistics:** Clearly describe the statistical analysis and distinguish between technical and biological replicates.
8. **Environmental relevance:** Discuss the relevance of the tested PAE concentrations to naturally contaminated environmental systems.
9. **Tables/Figures:** Table 3 appears incomplete and should be provided in full. Figures should include appropriate controls and statistical/error information.
10. **Conclusion:** Avoid equating disappearance of DEP/DBP with complete mineralization unless mineralisation was experimentally demonstrated.

Recommendation: Minor revision. The study is potentially valuable, but the above issues should be addressed to strengthen its scientific validity and reproducibility.