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| Journal Name: | [**Journal of Advances in Biology & Biotechnology**](https://journaljabb.com/index.php/JABB) |
| Manuscript Number: | **Ms\_JABB\_138982** |
| Title of the Manuscript: | **Phosphorus Dynamics and Soil Fertility in Drip-Irrigated Ratoon Sugarcane as Influenced by Fertilizer Regimes and Soil Properties** |
| Type of the Article | **Original Research Article** |

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| PART 1: Comments | | | | |
|  | Reviewer’s comment **Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.** | | | **Author’s Feedback** (It is mandatory that authors should write his/her feedback here) |
| **Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.** | **The manuscript studies the phosphorus fractions in ratoon sugarcane under different fertilization regimes, particularly comparing conventional fertilizer with water-soluble formulations and FYM. Understanding the behavior and availability of various forms of phosphorus at different crop growth stages is crucial for optimizing nutrient management in red soils, which are known for high phosphorus fixation. The strong correlations between available phosphorus and its fractions, as well as with key soil properties, highlight the importance of tailored fertilization strategies for sustainable crop productivity. These findings can guide researchers, agronomists, and farmers in improving phosphorus use efficiency and soil fertility management in sugarcane-based systems.** | | |  |
| **Is the title of the article suitable?**  **(If not please suggest an alternative title)** | **Yes, the title of the article is generally suitable if it clearly reflects the study's focus on phosphorus fractionation under different fertilization regimes in ratoon sugarcane. But I will also suggest the alternative title "Effect of Conventional and Water-Soluble Fertilizers on Phosphorus Fractions and Their Relationship with Soil Properties in Ratoon Sugarcane”.** | | |  |
| Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here. | **The abstract is generally comprehensive and provides a clear overview of the objectives, methodology, key findings, and significance of the study. It successfully highlights the comparison between conventional and water-soluble fertilizers and their impact on different phosphorus fractions in ratoon sugarcane.**  **Suggestions for improvement:**   * **Explicitly state the main aim of the study in the opening lines for better reader understanding.** * **Mention only the most significant results (e.g., highest Fe-P, strongest correlation) rather than listing too many values, which can overwhelm the reader.** * **Conclude with a line highlighting the practical application of the findings for improving phosphorus use efficiency or soil fertility management in sugarcane cultivation.** | | |  |
| Is the manuscript scientifically, correct? Please write here. | **Yes, the manuscript is scientifically correct. It presents a detailed and well-structured investigation on the dynamics of various phosphorus fractions in ratoon sugarcane under different fertilization regimes. The experimental design, data analysis, and interpretation are appropriate and supported by relevant literature. Correlation analyses are used effectively to establish relationships between phosphorus forms and soil properties, enhancing the scientific validity of the conclusions. The references cited are relevant and support the findings, making the manuscript a reliable contribution to soil nutrient dynamics and phosphorus management research**. | | |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.** | **The references cited in the manuscript are generally relevant and cover foundational and classical studies on phosphorus fractions and soil chemistry. However, most of them are relatively old, with several references dating back to the 1960s–1990s. To strengthen the manuscript and align it with current research trends, it would be beneficial to include some recent references (from the past 5–7 years) related to:**   * **Phosphorus fractionation in modern fertilization systems** * **Use of FYM and water-soluble fertilizers in sustainable agriculture** * **Recent studies on phosphorus dynamics in sugarcane or similar cropping systems** * **Suggested journals for updated references include Geoderma, Agriculture, Ecosystems & Environment, Field Crops Research, and Nutrient Cycling in Agroecosystems.** | | |  |
| Is the language/English quality of the article suitable for scholarly communications? | **The language of the article is mostly understandable and conveys the intended scientific information. However, there are several grammatical errors, awkward sentence structures, and repetitive phrases that need improvement for better readability and clarity. Some technical terms are used correctly, but the flow of sentences can be enhanced for smoother scholarly communication.**  **A thorough proofreading and editing—focusing on grammar, sentence coherence, and punctuation—will greatly improve the manuscript’s quality and make it more suitable for publication in a peer-reviewed journal.** | | |  |
| Optional/General comments |  | | |  |
| **PART 2:** | | | | |
|  | | **Reviewer’s comment** | **Author’s Feedback** (It is mandatory that authors should write his/her feedback here) | |
| **Are there ethical issues in this manuscript?** | | *(If yes, Kindly please write down the ethical issues here in details)* |  | |

**Reviewer details:**

**Muzamil Yousuf, Sher e Kashmir University of Agricultural Sciences and Technology of Jammu, India**