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REVIEWER'S REPORT

Manuscript No.: IJAR-55524

Title: Identification of elite local accessions of Roselle (Hibiscus sabdariffa) through the evaluation of morpho-phenological characters,

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 Name: Dr Thirunahari Ugandhar

Detailed Reviewer's Report

General Assessment

The manuscript presents a **well-designed and comprehensive morpho-phenological evaluation** of local accessions of *Hibiscus sabdariffa* collected from different agro-ecological zones of Côte d'Ivoire. The study addresses an **important gap in the characterization and utilization of indigenous genetic resources**, particularly in the context of varietal improvement programs. The experimental design, statistical analyses, and interpretation of results are appropriate and scientifically sound.

Overall, the manuscript is **original, relevant, and contributes valuable baseline data** for roselle breeding and conservation. With **minor revisions**, the manuscript is suitable for publication.

Strengths of the Manuscript

1. **Relevance and originality**

   The study provides rare and valuable information on the morpho-phenological diversity of *H. sabdariffa* in Côte d'Ivoire, where such data are limited.

   Identification of elite accessions across multiple developmental stages is highly relevant for breeding programs.

2. **Robust experimental design**

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Use of a randomized Fisher block design with replicates enhances the reliability of the results.

Evaluation across four developmental stages (seedling, vegetative, flowering, fruiting) provides a holistic understanding of accession performance.

3. **Appropriate statistical analyses**

   Use of Kruskal-Wallis test, Dunn's post-hoc test, Pearson correlation, PCA, and k-means clustering is appropriate and well justified.

   PCA effectively explains a high proportion of total variability (70.07%), strengthening conclusions on trait structuring.

4. **Clear identification of elite accessions**

   Consistent performance of accessions such as **HSKO 037, HSFE 031, HSBK 004, and Bangolo** across stages is convincingly demonstrated.

   The discussion successfully links phenotypic stability to breeding potential.

5. **Good linkage with previous studies**

   The manuscript effectively compares results with earlier findings from Africa and Asia, reinforcing scientific credibility.

Major Comments (Minor Revision Required)

1. **Language and clarity**

   The manuscript would benefit from **professional English language editing**, particularly to improve sentence structure, verb tense consistency, and article usage.

   Some sections (Results and Discussion) are lengthy and could be slightly condensed for clarity.

2. **Title refinement**

   Consider simplifying the title for clarity and impact, for example:

Identification of elite local accessions of Roselle (Hibiscus sabdariffa L.) based on morpho-phenological traits

3. **Abstract/Summary**

   The summary is informative but could be slightly shortened.

   Clearly state **key outcomes**, especially the names of elite accessions and their potential application in breeding programs.

4. **Tables and numbering**

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There is a **mislabeling of tables** (e.g., Table IV used twice). Please revise table numbering carefully.

Ensure uniform formatting of tables (decimal places, units, headings).

5. **Figure clarity**

Figure captions (especially Figure 1 and Figure 2) should be more descriptive.

Ensure that all figures are of high resolution and clearly readable.

Minor Comments

1. **Consistency of terminology**

Use consistent terms for developmental stages (e.g., "2-leaf stage" vs. "seedling stage").

Standardize variable names throughout text, tables, and PCA interpretation.

2. **Statistical reporting**

Indicate significance levels consistently (e.g., $P < 0.05$).

When discussing correlations, briefly interpret biological relevance.

3. **Conclusion**

The conclusion could be strengthened by explicitly stating how the identified elite accessions can be integrated into **future breeding, conservation, or seed system programs**.

Recommendation

Recommendation: Accept for publication after minor revisions

The manuscript is scientifically sound, methodologically rigorous, and contributes significantly to the understanding of morpho-phenological diversity and elite accession selection in *Hibiscus sabdariffa*. After addressing the minor language, formatting, and clarity issues noted above, the paper will be suitable for publication in a peer-reviewed journal focusing on plant breeding, genetic resources, or agronomy.