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REVIEWER'S REPORT

Manuscript No.: IJAR- 56219

Title: Evaluation of salt stress tolerance in wheat varieties cultivated in the polders of lake chad at the germination stage

Recommendation:
Accept as it is .....
Accept after minor revision.....
Accept after major revision
Do not accept (*Reasons below*)

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

Reviewer Name: **ANAPANA GOPAL**

Reviewer's Comment for Publication.

General Comments

The manuscript entitled *"Evaluation of salt stress tolerance in wheat varieties cultivated in the polders of Lake Chad at the germination stage"* addresses a highly relevant agronomic problem, particularly for arid and semi-arid regions affected by increasing soil salinity. The focus on the Lake Chad polders is timely and regionally important, given the progressive salinization of these agroecosystems and their socio-economic significance.

The study is clearly designed, employs standard germination and seedling growth parameters, and provides useful comparative data on varietal responses to salinity stress. Overall, the manuscript demonstrates scientific merit; however, improvements are required in methodological clarity, statistical rigor, interpretation depth, and language polishing to meet international journal standards.

Content and Originality

Strengths:

- The study addresses a real and pressing agricultural constraint in the Lake Chad region.
- The evaluation of locally cultivated and introduced wheat varieties enhances the applied relevance of the findings.
- Screening at the germination stage is appropriate for early identification of salt-tolerant genotypes.
- The integration of Salt Tolerance Index (STI) alongside germination and growth parameters strengthens varietal classification.

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Limitations:

- The novelty is moderate, as numerous studies have already evaluated wheat germination under NaCl stress.
- The manuscript would benefit from a clearer statement of what differentiates this study from previous regional or global research.
- The work is primarily phenotypic; no physiological (e.g., ion content, osmolytes) or molecular markers are explored.
- The implications for breeding programs are discussed but not sufficiently developed.

To enhance originality, the authors could:

- Explicitly compare tolerance thresholds with those reported in similar agro-ecological zones.
- Emphasize the uniqueness of Lake Chad polders as a salinity-affected production system.
- Propose specific breeding or management pathways based on the identified tolerant varieties.

Technical Quality

Experimental Design:

- The use of a completely randomized design is appropriate.
- NaCl concentrations are well chosen to represent increasing salinity stress.
- Germination criteria and observation duration are clearly defined.

Statistical Analysis:

- One-way ANOVA is reported; however, the experimental design includes two factors (variety and salinity level).
- A **two-way ANOVA** would be more statistically appropriate to test interaction effects between variety and NaCl concentration.
- Post-hoc multiple comparison tests (e.g., Tukey HSD) are not mentioned and should be included to support varietal ranking.
- Replication details (number of Petri dishes per treatment) should be explicitly stated.

Data Interpretation:

- Results are generally consistent with known salinity stress responses.
- Some interpretations are repetitive across parameters.
- Unexpected trends (e.g., increase in GSI at high NaCl for Somps 90) are noted but not sufficiently explained.
- Units should be standardized (e.g., root length reported as cm vs mm).

Language and Presentation

The manuscript is generally readable but requires moderate language editing.

Common Issues:

- Occasional grammatical inconsistencies (e.g., article use, verb agreement).
- Long sentences that reduce clarity.
- Minor typographical errors (e.g., spacing in tables, figure captions).
- Inconsistent use of abbreviations (e.g., SG vs SL).

The scientific tone is appropriate, but professional English editing would significantly improve clarity and flow.

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Structure and Organization
Strengths:
- Logical organization following standard IMRAD structure.
- Clear separation of Results and Discussion sections.
- Figures and tables are appropriately referenced in the text.

Weaknesses:
- The Introduction is slightly lengthy and could be more concise.
- Objectives should be explicitly stated at the end of the Introduction as bullet points or a short paragraph.
- The Discussion occasionally reiterates results rather than critically analyzing them.
- Conclusions could be strengthened by emphasizing practical recommendations for farmers and breeders.

Suggested improvements:
- Streamline background information.
- Strengthen linkage between Results and cited literature in the Discussion.
- Add a short subsection on limitations and future research directions.

References and Citations
Strengths:
- References are current and relevant.
- Good balance between classic and recent studies.
- Appropriate citation of FAO and region-specific literature.

Issues:
- Formatting inconsistencies across references (spacing, capitalization, italics).
- Some references lack DOIs.
- Minor inconsistencies in citation style (e.g., use of "et al.").
- Ensure consistency with the target journal's reference format.

Overall Recommendation
The manuscript presents valuable data on wheat salinity tolerance in a highly vulnerable agroecosystem. The experimental approach is sound, and the results are relevant for varietal selection and early-stage screening.
However, the paper requires improvements in statistical analysis, clarity of presentation, and depth of discussion to fully meet publication standards.

Final Decision:
Minor Revision Required
The manuscript is suitable for publication after addressing statistical concerns, improving clarity, refining interpretation, and correcting language and formatting issues.