Review Form 1.7

Journal Name:	**International Journal of Environment and Climate Change**
Manuscript Number:	**Ms_IJECC_103308**
Title of the Manuscript:	**Moisture stress in upland rice (Oryza sativa L.) and measures to overcome it under climate change: A Review**
Type of the Article	**Review article**

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty'**, provided the manuscript is scientifically robust and technically sound.
To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

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PART 1: Review Comments

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Compulsory REVISION comments **1. Is the manuscript important for scientific community?** (Please write few sentences on this manuscript) **2. Is the title of the article suitable?** (If not please suggest an alternative title) **3. Is the abstract of the article comprehensive?** **4. Are subsections and structure of the manuscript appropriate?** **5. Do you think the manuscript is scientifically correct?** **6. Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form.** **(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)**	The research addresses a **relevant topic**, rice is a staple **food crop for millions of people, mainly in Asia** and the management of water stress in upland rice is the focus of the research. **Water stress is one of the main challenges facing world agriculture**, and developing effective strategies to deal with this problem is crucial to ensure food security in a context of **climate change**. The **introduction presents a complete overview** of the impact of water stress on upland rice productivity and emphasizes the low productivity of upland rice compared to lowland rice, pointing to moisture stress as the main constraint for the increase. of productivity. The mention of the need for extensive research on **cultivation and management to deal with water stress reinforces the importance of the topic**. **The introduction provides adequate background for the discussion that follows.** The research describes the **impact of drought on rice, affecting both the grain quality and the morphological and physiological characteristics of the plant.** Drought before and after the head reduces the quality of brown and milled rice, affects tillering, floret initiation and spikelet sterility, as well as grain filling. Terminal drought is the most damaging factor for rice productivity. **Drought also reduces the number of tillers, impairs plant height and seedling germination.** Plants respond to water stress with physiological adaptation mechanisms, such as leaf curling and adjustments in transpiration. Water stress during early reproductive growth affects rice phenology, increasing the duration of development and affecting the yield. Water stress in the reproductive stage reduces plant height, time to complete topping, flag leaf area, chlorophyll content and panicle harvest. Water stress affects several physiological systems in plants and requires the optimization of physiological mechanisms to increase productivity during adverse conditions. Which are: **Effect on photosynthesis, effect on protein synthesis; effects on abscisic acid hormone (ABA), effects on lipid synthesis and oxidative stress accompanied by water stress**. Furthermore, the text highlights the importance of adopting advanced technological approaches, such as intelligent irrigation systems and omics techniques, to improve water stress tolerance in upland rice. The use of sensors and solar energy in irrigation systems contributes to more efficient water management, reducing water stress in plants and avoiding the excessive use of water resources. Furthermore, omics approaches provide valuable data on plant molecular responses to abiotic stress, which may help in the development of more resistant varieties. The use of growth regulators, such as paclobutrazol, can also be a promising strategy to improve stress tolerance by balancing plant hormones. Overall, the text highlights the importance of adopting an integrated approach that combines technology, genetics, and molecular biology to address the challenges of water stress in upland rice cultivation. **The introduction is well written, the abstract is complete, the entire review has been well discussed, the references cited are from relevant and experienced researchers in the field.The review has important contributions to the scientific community, the suggestion is to develop scientific research on the subject quantifying all these variables, because in the future we will have solid evidence and significant results.**	
Minor REVISION comments **1. Is language/English quality of the article suitable for scholarly communications?**	----------	
Optional/General comments	----------	

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. 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)*	

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