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| Journal Name: | [**Biotechnology Journal International**](https://journalbji.com/index.php/BJI) |
| Manuscript Number: | **Ms\_BJI\_141685** |
| Title of the Manuscript: | **Physiological Enhancements of Soybeans Through Artificially Induced Polyploidy** |
| Type of the Article |  |

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|  | **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.** | This manuscript is important as it explores how artificially induced polyploidy can enhance key physiological traits in soybeans. It offers valuable insights into improving stress tolerance, growth, and yield, contributing to sustainable crop improvement. The findings can support future breeding strategies and biotechnological applications in soybean cultivation. |  |
| **Is the title of the article suitable?****(If not please suggest an alternative title)** | A more refined title could be:**"Enhancing Soybean Physiology Through Artificial Polyploidy Induction.** |  |
| **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.** | This study aimed to induce polyploidy in *Glycine max* (soybean) using colchicine and evaluate its effects on morphological, physiological, and cytological traits. Seeds were treated with different colchicine concentrations for 24 and 48 hours. Polyploidy was confirmed through analyses of stomatal and epidermal cells, pollen size, chromosome behavior, and DNA density. Treated plants showed improvements in leaf thickness, plant height, and seed size, along with increased chlorophyll, protein content, and favorable ion ratios. These results suggest that colchicine-induced polyploidy can enhance key traits in soybean, offering potential for crop improvement. |  |
| **Is the manuscript scientifically, correct? Please write here.** | **Yes**, the manuscript appears to be scientifically correct. It follows a logical structure, uses appropriate methodology for polyploidy induction in *Glycine max* using colchicine, and employs standard physiological and cytological analyses to confirm results. The conclusions are supported by the data presented, and the findings are relevant to crop improvement research. Minor language and formatting edits could further enhance clarity and presentation. |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.** | **Yes**, the references included are relevant to the study; however, adding more **recent and high- impact references (from the last 5 years)** would strengthen the manuscript by aligning it with the latest developments in plant polyploidy and soybean improvement research. Including recent studies on colchicine-induced polyploidy, genomic stability in polyploids, and advances in soybean breeding would enhance scientific rigor and context. |  |

PART 1: Comments

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| **Is the language/English quality of the article suitable for scholarly communications?** | **Yes**, the language and English quality of the article are suitable for scholarly communication. The manuscript generally maintains a formal academic tone and uses appropriate scientific terminology. Minor grammatical and stylistic revisions could further improve clarity and flow, but overall, the language is adequate for publication. |  |
| **Optional/General** comments |  |  |

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| **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)* |  |

**Reviewer details:**

**Daraj Uddin Prodhan, Sher-e-Bangla Agricultural University, Bangladesh**