

Review Form 1.7

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| Journal Name: | International Journal of Environment and Climate Change |
| Manuscript Number: | Ms_IJECC_111413 |
| Title of the Manuscript: | Synthesis and Characterization of Nano-urea and its Effects on Growth and Yield of Wheat in Inceptisol |
| Type of the Article | |

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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) |
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| Compulsory REVISION comments | | |
| 1. Is the manuscript important for scientific community? (Please write few sentences on this manuscript) | Nano-urea has been shown to have positive effects on the growth and yield of wheat. In a study conducted by Mahipal Singh Choudhary et al., the application of nano-urea at 25-30 DAS and 45-50 DAS significantly increased plant height of wheat at 75 DAS. The tallest plant of wheat at harvest was observed under foliar application of nano-urea at 25-30 DAS and 45-50 DAS during both the years and on pooled data basis. Another study by Aakash Ojha et al. found that applying 100% nitrogen along with foliar spray of 4ml/L nano-urea significantly affected wheat growth, yield, and yield parameters. Furthermore, a study by Sharma et al. synthesized a nanocomposite of urea and chitosan as a slow-release fertilizer, which showed enhanced plant growth. These studies suggest that the application of nano-urea can lead to improved growth, yield, and nutritional quality of wheat. However, more comprehensive research is needed to fully understand the mechanisms behind the enhanced performance of wheat when treated with nano-urea. | |
| 2. Is the title of the article suitable? (If not please suggest an alternative title) | Synthesis, Characterization, and Impact of Nano-urea on Wheat Growth and Yield in Inceptisol Creation and Description of Nano-urea and Its Impact on Wheat Growth and Yield in Inceptisol Inceptisol Wheat Growth and Yield: Synthesis, Characterization, and Impact of Nano-urea Production | |
| 3. Is the abstract of the article comprehensive? | The abstract should be short, complete, comprehensive and written in one paragraph. The abstract should be revised and rewritten. | |
| 4. Are subsections and structure of the manuscript appropriate? | They should be set according to the guidelines of journal authors. | |
| 5. Do you think the manuscript is scientifically correct? | <p>The synthesis and characterization of nano-urea and its effects on the growth and yield of wheat in Inceptisol (a type of soil) is an interesting topic that involves both nanotechnology and agriculture. Here is a general outline of the process and considerations for such a study:</p> <p>1. Synthesis of Nano-urea:</p> <p>a. Materials and Reagents:</p> <ul style="list-style-type: none">• Urea• Nanomaterial precursors• Solvents• Stabilizing agents <p>b. Synthesis Method:</p> <ul style="list-style-type: none">• Describe the steps involved in synthesizing nano-urea. This could involve chemical or physical methods, such as precipitation, sol-gel, or other approaches. <p>c. Characterization Techniques:</p> <ul style="list-style-type: none">• Use techniques like X-ray diffraction (XRD), scanning electron microscopy (SEM), transmission electron microscopy (TEM), and Fourier-transform infrared spectroscopy (FTIR) to characterize the size, morphology, and chemical structure of the synthesized nano-urea. <p>2. Soil Preparation:</p> <p>a. Selection of Inceptisol:</p> <ul style="list-style-type: none">• Provide details about the Inceptisol chosen for the study. | |

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| <p>6. Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form.</p> <p><u>(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)</u></p> | <p>b. Soil Characterization:</p> <ul style="list-style-type: none">Analyze the physical and chemical properties of the Inceptisol, including pH, organic matter content, nutrient levels, etc. <p>3. Growth and Yield Study:</p> <p>a. Experimental Design:</p> <ul style="list-style-type: none">Describe the setup of the experiment, including control groups and variables. <p>b. Application of Nano-urea:</p> <ul style="list-style-type: none">Detail how and when nano-urea is applied to the soil. <p>c. Monitoring Growth:</p> <ul style="list-style-type: none">Regularly measure and record plant height, leaf area, and other relevant growth parameters. <p>d. Yield Assessment:</p> <ul style="list-style-type: none">Measure the wheat yield at the end of the growth period, considering factors like grain weight, number of grains per spike, and other relevant metrics. <p>4. Data Analysis:</p> <p>a. Statistical Analysis:</p> <ul style="list-style-type: none">Use statistical methods to analyze the data and determine if there are significant differences between the groups. <p>b. Graphs and Figures:</p> <ul style="list-style-type: none">Present the results through graphs and figures for better visualization. <p>5. Discussion and Conclusion:</p> <p>a. Interpretation of Results:</p> <ul style="list-style-type: none">Discuss the impact of nano-urea on the growth and yield of wheat. <p>b. Comparison with Conventional Urea:</p> <ul style="list-style-type: none">Compare the results with those obtained using conventional urea to assess the effectiveness of nano-urea. <p>c. Potential Benefits and Concerns:</p> <ul style="list-style-type: none">Discuss the potential benefits of using nano-urea in agriculture and any concerns related to its application. <p>6. Future Directions:</p> <p>a. Areas for Further Research:</p> <ul style="list-style-type: none">Suggest areas for future studies, such as optimizing nano-urea concentration or investigating its long-term effects. <ul style="list-style-type: none">This research requires accurate statistical work and comparison of averages and investigation of relationships between traits and treatments. <p>References: Include a comprehensive list of references citing relevant scientific literature, articles, and studies on nano-urea, wheat growth, and soil properties. References should be adjusted according to the authors' guide.</p> <p>The entire text should be revised and fundamentally rewritten in terms of the rules and grammar of the English language.</p> | |
| <p>Minor REVISION comments</p> <p>1. Is language/English quality of the article suitable for scholarly communications?</p> | <p>It needs severe revision and correction.</p> | |
| <p>Optional/General comments</p> | <p>It needs correction and revision in terms of statistics and English grammar.</p> | |

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PART 2:

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| | 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:

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| Name: | Sayed Mohammad Reza Khoshroo |
| Department, University & Country | Islamic Azad University, Iran |