Review Form 3

Journal Name:	**Asian Journal of Environment & Ecology**
Manuscript Number:	**Ms_AJEE_126123**
Title of the Manuscript:	**Investigation of the physical and chemical characteristics of effluents collected from the textile region of Bagru, Jaipur (Rajasthan, India)**
Type of the Article	

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PART 1: Review Comments

Compulsory REVISION comments	**Reviewer's comment**	**Author's Feedback** *(Please correct the manuscript and highlight that part in the manuscript. 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. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.	This manuscript addresses a significant environmental issue by investigating the physico-chemical characteristics of effluents from the textile industry in Bagru, Jaipur, India. Given that the textile sector is a major contributor to water pollution worldwide, the study's findings on parameters like BOD, COD, TDS, and pH provide valuable insights into the extent of pollution and its potential impacts on ecosystems and human health. For the scientific community, this research can contribute to a better understanding of industrial effluent treatment needs and the development of policies for environmental protection. However, the manuscript would benefit from enhancements in several areas to meet high scientific standards. These include expanding the range of analysed parameters, adding statistical analyses, incorporating discussion sections to contextualise findings with existing literature, and improving the presentation quality. Addressing these aspects would strengthen the study's scientific rigour and relevance.	
Is the title of the article suitable? **(If not please suggest an alternative title)**	The title, "Investigation of the physical and chemical characteristics of effluents collected from the textile region of Bagru, Jaipur (Rajasthan, India)," gives a clear idea about the focus of the study—effluent characteristics from a specific textile region. It effectively sets the expectation for a comprehensive assessment of both the physical and chemical properties of the textile effluents. However, to better reflect the manuscript's scope and enhance clarity, consider revising the title to include the types of analyses performed, such as "Physico-Chemical Analysis of Textile Effluents from Bagru, Jaipur (Rajasthan, India): Implications for Environmental Impact and Treatment Needs." This revised title better captures the significance and potential environmental relevance of the study. Additionally, if only a limited number of parameters were examined, it would be helpful to specify this to avoid overstating the comprehensiveness of the investigation.	
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.	The abstract of the article is fairly comprehensive as it provides a clear overview of the study's objectives, methodology, key findings, and implications. However, the abstract could be improved by briefly mentioning the specific parameters analysed (e.g., TDS, BOD, COD, pH, chloride) and summarising the key findings for each parameter. It could benefit from a brief mention of the study's recommendations to provide a more detailed snapshot of the study's scope and conclusions.	
Are subsections and structure of the manuscript appropriate?	The manuscript contains key sections, including the Abstract, Introduction, Materials and Methods, Results and Discussion, Conclusion, and References, which are standard for scientific research papers. However, some structural improvements could make the manuscript more comprehensive and aligned with scientific writing conventions: However, there are a few areas for improvement: 1. The manuscript combines results and discussion in one section. It would be clearer and more structured to separate these into two sections: Results (presenting the data) and Discussion (interpreting the findings). This separation allows for a more in-depth analysis and better clarity for readers. 2. The current discussion should more thoroughly interpret the findings, compare them with previous studies, and discuss their environmental implications. Including suggestions for future research would also be beneficial. 3. Make sure each figure and table is referenced in the text, and ensure their legends are descriptive enough for standalone understanding.	
Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.	The manuscript addresses a significant environmental issue by assessing the physico-chemical characteristics of textile effluents from Bagru, Jaipur. However, to ensure scientific robustness, the manuscript could benefit from additional statistical analyses to validate the findings, a more detailed discussion comparing the results with established standards and literature, and thorough citation of methods. Without these enhancements, some conclusions may appear generalised or inadequately supported.	

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Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. **:**	The references are not sufficient, although the manuscript cites relevant references, covering foundational studies on textile effluent pollution, standard methods for water analysis, and some studies specific to the region. Some methods described in the 'Materials and Methods' section lack citations. Adding references for these methods would enhance the scientific credibility of the procedures used. The manuscript fails to cite enough references to support the findings in the result and discussion segment.	

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Minor REVISION comments **Is the language/English quality of the article suitable for scholarly communications?**	The language quality of the manuscript is generally understandable but requires improvement to meet the standards of scholarly communication. There are instances of awkward phrasing and grammatical errors. For example, sentence structure can be simplified or rephrased for better clarity and flow. Ensuring consistent use of tenses is also necessary throughout the manuscript. There is a need to address typographical errors within the manuscript to improve overall readability. Careful proofreading is needed to catch these issues.	
Optional/General comments	The manuscript addresses a significant environmental issue by investigating the physico-chemical characteristics of textile effluents in Bagru, Jaipur, which is relevant given the widespread impact of textile industry pollution. The study follows standard methods and provides data that highlights the need for improved wastewater treatment in the region. However, the manuscript requires substantial revisions to meet the standards of scholarly communication. Enhancements in the structure, including separating the results and discussion sections, expanding the discussion to include comparisons with recent literature, and incorporating statistical analyses, would strengthen the scientific rigor. The language needs polishing to correct grammatical errors, improve clarity, and ensure consistency in technical terminology and units. **In General (Important):** **Scope of Analysis**: The study assesses only EC, TDS, BOD, COD, pH and chloride. Given the title, "Investigation of the Physical and Chemical Characteristics of Effluents Collected from the Textile Region of Bagru, Jaipur (Rajasthan, India)," the parameters evaluated may be insufficient to fully justify the title. Consider expanding the scope by including additional parameters for a more comprehensive assessment. **Sampling Locations**: Incorporating a **MAP** of the sampling points would significantly enhance the visual representation of study locations, providing readers with a clearer spatial context. **Geographic Coordinates**: Adding a table listing the longitude and latitude for each sampling point is recommended. This detail is essential for geographic context and for facilitating the replication of the study. **Standard References**: It is recommended to tabulate the standards referenced within the discussion. Expanding beyond WHO standards to include additional references, such as those from the Environmental Protection Agency (EPA), European Union (EU) regulations, or relevant local standards, would contribute to a more comprehensive perspective. **Statistical Analysis**: The analysis could be enhanced by additional statistical evaluations to uncover deeper relationships among parameters. Consider incorporating: • **Analysis of Variance (ANOVA, F-test)** to determine differences among group means. • **Principal Component Analysis (PCA)** to explore multivariate relationships among physicochemical parameters and heavy metals across study sites. • **Correlation Matrix** for analyzing relationships among heavy metals and other parameters. **Correlation with Existing Literature**: To contextualize findings within the broader research landscape, compare the study's results with previously published data on effluents from the textile region of Bagru, Jaipur, or other relevant local water bodies. Such correlation enhances the study's relevance and situational insight. **Methodology Citations**: Methods used in the analysis currently lack citations. Including references, particularly for novel, standardized, patented, or in-house-developed methods, would improve the study's credibility and reproducibility. **Discussion Section**: An additional discussion section is necessary to interpret the findings, relate them to existing articles (on the same waterbody or close by), and evaluate their environmental significance. Currently, the	

	manuscript presents only results, which limits interpretative depth. **Figure Legends**: Ensure that all figure legends adhere to formatting standards, such as using Times New Roman font. **BY SECTION** **Abstract** Consider rephrasing the first sentence of the abstract, "All over the world, one of the largest water polluters is the textile industry," to "The textile industry is one of the largest water polluters worldwide." In order to avoid the use of passive voice. In stating the findings of the research, a more direct statement should be considered. “The results of this analysis indicate the use of synthetic dyes for dyeing and printing in Bagru textile industries." Could be written as "The analysis revealed the use of synthetic dyes in Bagru's textile industry." The conclusion could be strengthened by directly stating the implications of the findings, such as the potential health risks or environmental consequences of the pollution. **Introduction** The statement "... from last few decades" in the first paragraph should be written as "... over the past few decades" or "... in recent decades." Consider using estimated instead of evaluated in “It is evaluated that every year worldwide, 280,000 tons of textile dyes are discharged in industrial effluents (Jin et al., 2007).” The sentence "The textile industry is one of the largest generators of contaminated liquid effluents, because of the use of high quantity of water in the dyeing and finishing process" could be rephrased for better clarity and conciseness, such as "The textile industry is a major contributor to water pollution, consuming large quantities of water in the dyeing and finishing processes." The sentence "they are stable and cost effective to synthesize and they are available in variety of colours" is convoluted. Consider splitting it into two simpler sentences, such as "Synthetic dyes are stable and cost-effective to synthesize." They are also available in a variety of colours." The sentence structure in the final part of the first paragraph is a bit convoluted. Consider breaking it down into two sentences for better readability. Revise the punctuation, especially the appropriate use of commas, such as in the first sentence of the second paragraph, "which when accumulated in body" to "which, when accumulated in the body." The sentence "Furthermore, the types of synthetic dyes used in the processing stages of dyeing decide the dissolved oxygen, pH value, organic and inorganic content of wastewater (Banat et al., 1996)" could be improved by rephrasing: "The types of synthetic dyes used in dyeing processes significantly impact water quality parameters, including dissolved oxygen, pH, and organic and inorganic content." The sentence is quite long and complex. Consider breaking it down into two or three shorter sentences. For example: "The disposal of textile industry waste in open landfills or water bodies leads to severe environmental consequences. These include reduced sunlight penetration, decreased oxygen levels, and accumulation of toxic pollutants, which can harm both aquatic and terrestrial ecosystems." Consider combining the sentences in "The Indian Textile industry is one of the largest in the world and Rajasthan, one of the states of India, has a longstanding legacy in the textile industries." to "India's textile industry, particularly in the state of Rajasthan, is one of the largest and oldest in the world." **Materials and Methods** The sentence, "The 35 wastewater samples were collected from different textile and printing units of the Bagru region in sterilized polyethylene bottles and were labelled as textile unit effluent (BTEF1 to BTEF35)." could be rephrased to "Thirty-five wastewater samples were collected from different textile and printing units in the Bagru region. These samples were collected in sterilised polyethylene bottles and labelled as BTEF1 to BTEF35." to avoid repetition Provide more specific details about the sterilisation process (e.g., autoclaving, chemical sterilisation) for added clarity and reproducibility. Mention the specific temperature and duration of storage for the samples stored in the refrigerator. Specify the sterilisation method used and mention if any preservatives were used to maintain the quality of the samples. Providing more specific details about the analytical techniques (titration, spectrophotometry, etc.) used for each parameter would enhance the clarity of the methodology instead of just referencing the APHA standard methods. Consider rephrasing the expression "wiped it to clean" as "wiped clean." Providing more specific information about the calibration procedure (e.g., two-point calibration, buffer	

	solutions used) for the pH measurement would enhance the quality of the paper. Explain how temperature compensation was ensured during calibration and measurement of the pH meter. Explain how the temperature of the sample was maintained at 25 °C during the measurement of electrical conductivity (EC). Consider rephrasing the sentence, “Following the conductivity meter's standardization, the electrode is immersed into a beaker containing 25 ml of the wastewater sample.” to "After standardising the conductivity meter, the electrode was immersed into a 25 mL aliquot of the wastewater sample." Describe the specific criteria used to determine the endpoint of the titration, such as the persistence of the brick-red colour. The sentence "To determine the concentration of chloride ions, the burette reading was noted. Distilled water was used as a blank to estimate chloride" could be combined to form a more concise statement, such as "To determine the concentration of chloride ions, the burette reading was noted. Distilled water was used as a blank to estimate chloride." Ensure that all units in the formula are consistent. The unit for COD is mg/L, but the units for other variables (volume and molarity) need to be explicitly stated. Ensure to number all equations used for accurate referencing. For enhanced clarity, state if the equation used is a derivation or a reference to a standard method. The sentence “10 ml of water sample was taken into a round bottom reflex flask and diluted it up to 50 ml using distilled water" could be rephrased to "A 10 ml aliquot of water sample was diluted to 50 ml with distilled water in a round-bottom flask." for better conciseness. For more clarity, “All four bottles were closed immediately to avoid any air bubbles. One sample and one blank were incubated at 27 °C for three days. The remaining sample and blank were analysed immediately to determine dissolved oxygen (DO).” could be rewritten as “All bottles were sealed to prevent air exchange. One sample bottle and one blank bottle were incubated at 27°C in the dark for 3 days. The initial dissolved oxygen (DO) of the remaining sample and blank bottles was measured using a (method, e.g., Winkler titration or DO probe).” given more explanation to the storage condition and the method of measurement. In the determination of the total dissolved solids (TDS) of collected water samples, the pore size of the Whatman filter paper should be specified to ensure that all suspended solids are retained. Specify the units of measurements for each parameter in the TDS calculation, ensuring that the units for W1, W2, and V are consistent. **Results and Discussion** The writing style could be improved by using more active voice. For example, instead of "It was found that...", try "The study found that...". The analysis could be enhanced by incorporating quantitative measurements of colour intensity or odour strength. Instead of a general reference to "volatile compounds," a more detailed analysis of the volatile compounds responsible for the unpleasant odour could be provided. The choice of words in “The standard temperature of dischargeable effluent is 30□.” Could be improved using “The standard temperature limit for discharged effluent is 30 °C.”. The discussion could be strengthened by comparing the measured temperatures to specific regulatory standards for effluent discharge. This would highlight the extent of non-compliance and the potential environmental consequences. The discussion could be made more specific by explaining the mechanisms through which different levels of temperature, pH, electrical conductivity, chloride, chemical oxygen demand, biological oxygen demand, and total dissolved solids affect aquatic organisms instead of a generalized statement. Consider a quantitative analysis of the observed data for the parameters. Calculate the mean and standard deviation of the parameters to provide a statistical summary. This could help in assessing the overall profile of the effluents and comparing them to the standard discharge value. The structure of the sentence “If the pH is too high or too low, it can harm aquatic life and humans and disrupt their biological processes.” could be enhanced with “Excessive or insufficient pH levels can harm aquatic life, humans, and disrupt biological processes.” The choice of words in “The standard range of EC for textile effluents is 2-3 mS/cm.” could be rephrased to “The standard EC limit for textile effluents is 2-3 mS/cm.” Consider rephrasing, “All the inorganic salts and other materials dissolved in water are measured as	

	total dissolved solids (TDS).” to “Total dissolved solids (TDS) measure the total amount of inorganic salts and other dissolved materials in water.” **Conclusion** The statement, “Wastewater discharged from textile processing facilities must have minimal total dissolved solids, biological oxygen demand, chemical oxygen demand, and pH, per CPCB and WHO requirements.” could be rephrased to “extile processing facilities must discharge wastewater with minimal total dissolved solids, biological oxygen demand, chemical oxygen demand, and pH, as per CPCB and WHO requirements.” for conciseness. The choice of “Nonetheless” in “Original: Nonetheless, the temperature, EC, TDS, BOD, COD, pH, and chloride content showed a high discrepancy from the recommended standard values in the present investigation.” can be changed to "However”.	

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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