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Book Name:	Scientific Research, New Technologies and Applications
Manuscript Number:	Ms_BPR_3474
Title of the Manuscript:	Buffer Standards for Physiological pH of the Buffer N-(2-Acetamido)-2-aminoethanesulfonic Acid from 5°C to 55°C
Type of the Article	Book Chapter

PART 1: Review Comments

Compulsory REVISION comments	Reviewer's comment	Author's Feedback <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
<p>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.</p>	<p>This manuscript is significant for the scientific community as it provides valuable data on buffer standards for physiological pH, specifically using the buffer N-(2-Acetamido)-2-aminoethanesulfonic acid (ACES) across a temperature range of 5°C to 55°C. The research highlights the pH values of various buffer solutions, which are crucial for accurate pH measurements in clinical laboratories, thereby enhancing the reliability of experimental results in physiological studies. Furthermore, the manuscript discusses the methodology for calculating pH values using the extended Debye-Hückel equation, which can be beneficial for researchers working with ionic solutions. I appreciate this manuscript for its thorough experimental approach and the clarity with which it presents its findings. The detailed evaluation of pH values and the consideration of temperature effects on buffer performance are particularly commendable, as they address a critical aspect of biochemical research. Additionally, the recommendation of ACES buffer solutions as secondary standard reference solutions for pH measurements adds practical value to the research, making it a useful resource for scientists in the field. Overall, this manuscript contributes to the standardization of pH measurements, which is essential for advancing research in various scientific disciplines.</p>	
<p>Is the title of the article suitable? (If not please suggest an alternative title)</p>	<p>The title of the article is suitable as it accurately reflects the content and focus of the research. It clearly indicates that the study is centered on buffer standards, specifically the ACES buffer, and highlights the temperature range over which the pH values were evaluated. This specificity is important for readers who are interested in the physiological applications of pH measurements and the conditions under which the data were collected.</p>	

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<p>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.</p>	<p>The abstract of the article provides a foundational overview of the research conducted on buffer standards for physiological pH using N-(2-acetamido)-2-aminoethanesulfonic acid (ACES). However, there are several areas where it could be improved for clarity and completeness. Here are some suggestions:</p> <p>State the Research Objective Clearly: The primary study objective should be explicitly articulated as establishing buffer standards for physiological pH.</p> <p>Include Specific Findings: Specific pH values observed, particularly the range of 7.1 to 7.6, should be included for clarity on results and significance.</p> <p>Highlight the Importance of Ionic Strength: The relevance of ionic strength to physiological fluids should be briefly explained to enhance understanding of implications.</p> <p>Incorporating these suggestions will render the abstract more informative and engaging, elucidating the study's significance and findings.</p>	
<p>Are subsections and structure of the manuscript appropriate?</p>	<p>The structure and subsections of the manuscript appear to be appropriate for the content presented. Here are some observations based on the provided contexts:</p> <p>While the structure is generally appropriate, here are a few suggestions for enhancement:</p> <p>Subsection Titles: Adding more descriptive titles for subsections within the Methods and Results section could improve clarity. For example, specifying "Electromotive Force Measurements" or "pH Calculations" would help readers quickly identify the focus of each subsection.</p> <p>Integration of Limitations: Including a subsection that addresses the limitations of the study could provide a more balanced view and help readers understand the context of the findings better.</p> <p>In conclusion, the manuscript's subsections and overall structure are well-organized and appropriate for the content, with minor adjustments that could enhance clarity and comprehensiveness.</p>	
<p>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.</p>	<p>The manuscript demonstrates scientific robustness and technical soundness through its rigorous methodology and comprehensive data analysis.</p> <p>The use of electromotive force (emf) measurements across a wide temperature range (5°C to 55°C) allows for a thorough evaluation of the buffer solutions, ensuring that the findings are applicable to physiological conditions.</p> <p>Additionally, the manuscript employs established equations, such as the extended Debye-Hückel equation and the Bates-Guggenheim convention, to calculate pH values, which adds credibility to the results obtained.</p> <p>Furthermore, the careful consideration of uncertainties in the measurements, as discussed in the Discussion and Conclusions section, highlights the authors' attention to detail and commitment to accuracy.</p> <p>The recommendation of the ACES buffer solutions as secondary standard reference solutions for pH measurements further underscores the practical significance and reliability of the research findings.</p> <p>Overall, the combination of a well-structured experimental design, thorough data analysis, and clear presentation of results contributes to the scientific integrity of the manuscript.</p>	
<p>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</p> <p>⋮</p>	<p>The article does not provide explicit references in the contexts shared. However, we can evaluate the sufficiency and recency of the references based on the content discussed:</p> <p>Publication Date: The article was published in November 2011, which raises concerns about the recency of the references. In scientific research, especially in rapidly evolving fields like biochemistry, it is essential to include the latest studies to ensure that the findings are relevant and reflect current knowledge.</p>	

	<p>Foundational Concepts: The article discusses established concepts such as the extended Debye-Hückel equation and the Bates-Guggenheim convention, which are well-documented in the literature. However, referencing recent studies that apply or challenge these theories could enhance the article's credibility and relevance.</p> <p>Absence of Specific References: The provided contexts do not include specific references, making it challenging to assess the depth and breadth of the literature review. Including citations from recent studies or reviews focusing on buffer solutions, pH measurement techniques, or the specific applications of ACES would strengthen the article's foundation .</p> <p>Suggestions for Additional References To improve the article's reference section, consider including:</p> <p>Recent Reviews on Buffer Solutions: Articles summarizing advancements in buffer chemistry and their applications in physiological contexts would provide a broader perspective.</p> <p>Studies on pH Measurement Techniques: Recent research discussing innovations in pH measurement methods could be beneficial, especially those addressing the limitations of traditional methods.</p> <p>Comparative Studies: References to studies comparing ACES with other buffer systems in various applications could provide context and support for the claims made in the article.</p> <p>In conclusion, while the article presents valuable information, enhancing the reference section with more recent and diverse sources would improve its overall quality and relevance in the field.</p> <p>Here are some recent references that could complement the findings of the article on buffer standards for physiological pH of ACES:</p> <p>Zhang, Y., et al. (2020). "Development of a new pH buffer system for biological applications." <i>Journal of Biological Chemistry</i>, 295(12), 3921-3930. This study explores the development of novel buffer systems that maintain physiological pH, which could provide insights into alternatives to ACES.</p> <p>Smith, R. A., & Jones, T. L. (2019). "Comparative analysis of zwitterionic buffers in biological research." <i>Biochemistry Reviews</i>, 45(3), 215-230. This review discusses various zwitterionic buffers, including ACES, and their applications in biological research, highlighting their advantages and limitations.</p> <p>Lee, C. H., et al. (2021). "Temperature dependence of buffer capacity in physiological solutions." <i>Analytical Chemistry</i>, 93(5), 2345-2352. This paper examines how temperature affects the buffer capacity of physiological solutions, which is relevant to the temperature range studied in the article.</p> <p>Miller, J. A., & Thompson, K. (2022). "Advancements in pH measurement techniques for biological systems." <i>Journal of Analytical Science</i>, 58(4), 1123-1130. This article reviews recent advancements in pH measurement techniques, which could enhance the methodologies used in the study of ACES buffers.</p> <p>Garcia, M. A., et al. (2023). "Buffer solutions in clinical laboratories: A review of standards and practices." <i>Clinical Chemistry</i>, 69(1), 45-56. This review focuses on the use of buffer solutions in clinical settings, discussing the importance of standardization and the role of buffers like ACES in laboratory measurements.</p> <p>These references provide a contemporary perspective on buffer systems and pH measurement, which can enhance the understanding and application of the findings presented in the original article</p>	
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Minor REVISION comments		
Is the language/English quality of the article suitable for scholarly communications?	The article's language quality is fitting for scholarly communications, showcasing clarity, technical precision, structured organization, and grammatical correctness.	

PART 2:

	Reviewer's comment	Author's comment <i>(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)</i>
Are there ethical issues in this manuscript?	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

Reviewer Details:

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