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| Book Name: | **[Chemistry and Biochemistry: Research Progress](https://www.bookpi.org/bookstore/product/chemistry-and-biochemistry-research-progress-vol-1/)** |
| Manuscript Number: | **Ms\_BPR\_5055** |
| Title of the Manuscript: | **Study of Nature of Chemical Reactions using pH-Meter** |
| Type of the Article | **Book Chapter** |

**Special note:**

**A research paper already published in a journal can be published as a Book Chapter in an expanded form with proper copyright approval.**

**Source Article:**

**This chapter is an extended version of the article published by the same author(s) in the following journal.**

**International Research Journal of Pure and Applied Chemistry, 25(4): 116-120, 2024.**

**DOI: 10.9734/irjpac/2024/v25i4870**

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| PART 1: Comments | | |
|  | Reviewer’s comment **Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.** | 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. A minimum of 3-4 sentences may be required for this part.** | This manuscript introduces an innovative method for studying the nature of chemical reactions, particularly in typical acid-base systems, which offers new insights into reaction mechanisms that traditional techniques fail to uncover. By clearly identifying single-step and multi-step processes through metric studies, it advances our understanding of neutralization reactions and their progression. The findings have broad implications for experimental methodologies in chemical research, enabling more accurate monitoring of reactions and paving the way for future studies. |  |
| **Is the title of the article suitable?**  **(If not please suggest an alternative title)** | The current title, \*"Study of Nature of Chemical Reactions using pH Meter,"\* provides an adequate description of the research but could be refined for better clarity, specificity, and impact like...  Investigating Reaction Mechanisms in Typical Acid-Base Systems Using pH Metric Titration |  |
| 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 provides a good overview of the study, but there are areas that can be improved to make it more comprehensive and impactful. Below are my suggestions:  Additions:  Replace placeholders (e.g., "given solution") with the actual names of the chemicals used, such as "sodium carbonate (Na₂CO₃)" and "hydrochloric acid (HCl)."  Highlight why using a meter is a novel approach compared to traditional methods like spectroscopy or chromatography.  Include a line about the broader implications or practical applications of the findings.  If possible, briefly mention key pH changes or numerical data to provide a stronger empirical basis for the conclusions.  **Deletions:**  Avoid excessive detail in the abstract regarding reaction steps; this is better suited for the main text. Instead, summarize the two-step vs. single-step conclusion succinctly. |  |
| **Is the manuscript scientifically, correct? Please write here.** | Based on the sections provided (abstract, introduction, materials and methods, results and discussion, conclusion), the manuscript appears to present a scientifically valid approach for studying typically, acid-base neutralization reactions using metric titration but not for all types reactions. Key findings, such as distinguishing single-step from multi-step reactions, align with experimental observations described in the results, but reproducibility of the methods were not focused. However, the following factors should be addressed to ensure complete scientific accuracy:  Critical information such as exact chemical names, concentrations, and apparatus specifications is missing or represented by placeholders.  The methods, while structured, lack certain controls (e.g., calibration of the meter) and experimental conditions (e.g., temperature) that could affect accuracy.  The repeated use of vague terms like "meter" without specifying its type (e.g., pH meter) could lead to ambiguity. |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.**  **-** | Based on the sections provided, the references appear to support the manuscript adequately by highlighting relevant studies across a range of applications for metric methods. However, there are a few considerations for improvement:  - Recent studies on innovative titration or reaction-monitoring methods that highlight the advantages of metric-based techniques over traditional methods.  - Articles or reviews detailing industrial applications of multi-step and single-step reaction analyses, particularly in neutralization processes. |  |
| Is the language/English quality of the article suitable for scholarly communications? | The language used in the manuscript provides a clear understanding of the research, but there are areas that could be refined to meet the standards of scholarly communication:  There are minor grammatical errors throughout the text, such as subject-verb agreement issues (e.g., "nature of chemical reactions \*are\* studied" should be "is studied") and inconsistent use of articles ("the reaction" versus "reaction").  Phrasing like "metric study" and "meter" is overly generic and could be specified further (e.g., "pH metric titration" or "pH meter") to improve precision and reader engagement.  Certain terms and phrases are repeated excessively, which could be streamlined to enhance the academic tone.  The language could benefit from a more formal and polished scholarly tone. For example, replacing informal or vague expressions with concise and technical terminology would elevate the manuscript. |  |
| Optional/General comments | The title reflects Generalized Chemical Reactions, which encompasses large area, but the study focused only on typical neutralization reactions, which is not acceptable.  The Methodolgy doesnt indicate reproducibility of experimental work as it misses technical information of conditions like temp etc.  The significance of the study is narrowed to understand single or multiple stage neutralization, not emohasized on real world applications |  |

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| **PART 2:** | | |
|  | Reviewer’s comment | Author’s comment *(if agreed with the 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 detail)* |  |

**Reviewers:**

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