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| Journal Name: | [**International Journal of Biochemistry Research & Review**](https://journalijbcrr.com/index.php/IJBCRR) |
| Manuscript Number: | **Ms\_IJBCRR\_132591** |
| Title of the Manuscript: | **Synthesis and Biological Evaluation of Quinoxaline-Based Compounds as Potential Antiviral Agents against Emerging Viruses** |
| Type of the Article |  |

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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 provides significant insights into the synthesis and biological evaluation of quinoxaline-based compounds as potential antiviral agents, addressing a critical need in the fight against emerging viral infections. By elucidating the structure-activity relationships (SAR) and demonstrating the antiviral efficacy of these compounds, the study contributes valuable knowledge that could guide future drug development. Furthermore, the focus on environmentally friendly synthesis methods aligns with contemporary scientific priorities, promoting sustainable practices in medicinal chemistry. | This manuscript provides valuable insights into the synthesis and biological evaluation of quinoxaline-based compounds, which hold great promise as potential antiviral agents. In addressing the urgent need for new antiviral therapies, the study contributes to advancing our understanding of the structure-activity relationships (SAR) of these compounds, offering a basis for future drug development. The environmental sustainability aspect of the synthesis process is another key strength of the manuscript, as it aligns with the growing emphasis on green chemistry practices in medicinal chemistry. The findings could significantly aid in the development of effective antiviral agents, particularly in response to emerging viral threats. |
| **Is the title of the article suitable?**  **(If not please suggest an alternative title)** | The title is suitable as it clearly conveys the main focus of the study: the synthesis and evaluation of quinoxaline compounds for antiviral applications. | The title is appropriate as it clearly communicates the primary focus of the study: the synthesis and evaluation of quinoxaline compounds for antiviral applications. It is concise and accurately reflects the content of the manuscript. |
| 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 generally comprehensive, however, here are a few suggestions for improvement:   * Please mention the synthetic techniques/methods used in the study to give readers insight into the methodology. * Include specific results/findings, such as the most promising compounds and its IC50 values, to highlight the outcomes of the research. * Emphasize the relevance of this research in the context of recent global health challenges, such as the COVID-19 pandemic, to underscore its significance. | The abstract is generally comprehensive; however, we will make the following adjustments to enhance its clarity and informativeness:   1. We will mention the synthetic methods used, such as the condensation reaction between o-phenylenediamine and dicarbonyl compounds, to provide readers with insight into the methodology. 2. We will include specific results, such as the most promising compound, QX-7, and its IC50 values against Zika virus (1.2 μM) and SARS-CoV-2 (2.8 μM), to emphasize the key outcomes of the study.  We will highlight the relevance of this research in addressing recent global health challenges, particularly in the context of the COVID-19 pandemic, to underscore the significance of the work. |
| Is the manuscript scientifically, correct? Please write here. | Based on the provided content of the manuscript, it appears to be scientifically correct. The synthesis methods described for quinoxaline derivatives align with established chemical practices, and the report of biological evaluations, including cytotoxicity and antiviral assays, follows standard protocols in pharmacological research. | The manuscript appears to be scientifically correct. The synthetic methods for quinoxaline derivatives are well established, and the biological evaluations, including cytotoxicity and antiviral assays, follow recognized protocols. We have cross-checked the methodology, and the results align with current scientific standards in medicinal chemistry and pharmacology |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.** | Many references are older than ten years, particularly those prior to 2010. It's important to include more recent studies to reflect the latest advancements in the field. The following references must be substituted with the recent one.  1. Cheeseman, G.W.H.; Cookson, R.F. Chemistry of Heterocyclic Compounds; Wiley-Interscience: Hoboken, NJ, USA, 1979; Volume 35. [Google Scholar]  2. Sarges, R.; Howard, H.R.; Browne, R.G.; Lebel, L.A.; Seymour, P.A.; Koe, B.K. 4-Amino[1,2,4]triazolo[4,3-a]quinoxalines. A novel class of potent adenosine receptor antagonists and potential rapid-onset antidepressants. J. Med. Chem. 1990, 33, 2240–2254. [Google Scholar] [CrossRef]  3. Anastas, P.; Warner, J. Green Chemistry: Theory and Practice; Oxford University Press: Oxford, UK, 1998; Volume 30. [Google Scholar] | We appreciate the reviewer’s feedback regarding the references. We acknowledge that several references are older than ten years. To reflect the latest advancements in the field, we will update the manuscript with more recent references, particularly those published after 2010. Specifically, the following older references will be substituted with more current studies:   1. Cheeseman, G.W.H.; Cookson, R.F. *Chemistry of Heterocyclic Compounds* (1979) will be replaced with more recent works on quinoxaline chemistry. 2. Sarges, R.; Howard, H.R.; Browne, R.G.; Lebel, L.A.; Seymour, P.A.; Koe, B.K. (1990) will be substituted with studies that focus on the recent applications of quinoxaline derivatives in drug discovery. 3. Anastas, P.; Warner, J. *Green Chemistry: Theory and Practice* (1998) will be updated with more recent references on green synthesis methods in medicinal chemistry. |
| Is the language/English quality of the article suitable for scholarly communications? | The language and English quality of the article are generally suitable for scholarly communication, but there are areas that could benefit from improvement. Some sentences are lengthy and could be restructured for clarity. Simplifying complex sentences can enhance readability. | The language and English quality of the manuscript are generally suitable for scholarly communication. However, we agree with the reviewer that some sentences could benefit from simplification for improved clarity and readability. We will revise the manuscript to restructure complex sentences and enhance its overall flow |
| 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)* | We have reviewed the manuscript, and no ethical issues are identified. The study involves only in vitro assays using established cell lines (Vero E6 and HEK293T) and viral strains obtained from certified repositories. These methods follow standard ethical guidelines in the field of medicinal chemistry, and there is no involvement of human or animal testing. If needed, we will clarify this in the manuscript to ensure transparency and adherence to ethical standards. |