

Review Form 3

Journal Name:	Asian Research Journal of Mathematics
Manuscript Number:	Ms_ARJOM_130999
Title of the Manuscript:	The Minimum Reduced Sombor Index of Unicyclic Graphs in terms of the Girth
Type of the Article	Original Research Article

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This journal’s peer review policy states that **NO** manuscript should be rejected only on the basis of ‘**lack of Novelty**’, provided the manuscript is scientifically robust and technically sound. To know the complete guidelines for the Peer Review process, reviewers are requested to visit this link:

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PART 1: 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>
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 contributes to the study of topological indices in chemical graph theory by identifying the unicyclic graph with the minimum Reduced Sombor Index (RSO). They proved that , equality holds if and only if $g(G)=n$.	We thank the reviewer for their time and effort for correcting this manuscript
Is the title of the article suitable? (If not please suggest an alternative title)	Yes. The current title, 'The Minimum Reduced Sombor Index of Unicyclic Graphs in terms of the Girth,' is relevant to the study.	We thank the reviewer for their time and effort for correcting this 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 is clear and comprehensive, effectively summarizing the study's purpose, methodology, and findings. In keywords delete graph invariant, tree, and characterization and add unicyclic graphs, and girth.	The keywords graph invariant, tree, and characterization and add unicyclic graphs, and girth are deleted
Is the manuscript scientifically, correct? Please write here.	The manuscript is likely scientifically correct, but further verification of the proofs and a clearer distinction from prior research are necessary.	The distinction from prior research are done.
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.	Many references are relevant and recent, particularly those discussing the Sombor index. However, one key reference is missing: the recently published paper ' Ordering Unicyclic Graphs with a Fixed Girth by Sombor Indices ' (MATCH, 2024), P. Nithya et al, which already determines the first four smallest Reduced Sombor indices for unicyclic graphs. This paper should be cited and discussed in the manuscript to provide proper context and comparison.	The references with sombor index are removed. The mentioned reference is added.
Is the language/English quality of the article suitable for scholarly communications?	"The manuscript is generally well-written and follows a clear scholarly structure. However, there are several grammatical inconsistencies, awkward phrasing, and minor typographical errors that could affect readability. Phrases like ' <i>the study involves in defining and analyzing</i> ' should be revised for grammatical correctness (e.g., ' <i>the study involves defining and analyzing</i> '). Additionally, some mathematical expressions are not properly integrated into sentences, which may reduce clarity.	The meaning for the symbols are added.
Optional/General comments	Keywords are irrelevant, remove graph invariant, tree, topological index and add unicyclic graph, girth	The mentioned keywords are removed.

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>	