Review of: "Phytochemical Analysis and Antioxidant Activity of Extracts from Berchemia zeyheri — A Swazi Medicinal Plant"

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Potential competing interests: No potential competing interests to declare.

The present study discusses the phytochemical analysis and antioxidant activity of extracts from Berchemia zeyheri. The manuscript in its present form has significant drawbacks that authors should carefully consider.

1. English language is not correctly presented. Please make the necessary changes (syntax changes, grammar mistakes, expression errors).
2. **Abstract**

• You mention that “Qualitative of phytochemical analysis was performed by using established methods and procedures.” Generally, when speaking of phytochemical analysis, we mostly refer to an HPLC analysis (in your case), or GC analysis, etc. This sentence disappoints readers’ expectations since not a complete phytochemical analysis was performed. I recommend rephrasing the sentence and giving specific information regarding the "*established methods and procedures*."

• What is the meaning of the last sentence, “Further studies on this plant are required to explore its therapeutic applications”? I think this sentence is unconnected to the abstract. Same inquiry regarding the last sentence of the conclusions section.

3. Introduction

• Please check the references. Some of them are not related to your study.

4. Materials and methods

• Phytochemical analysis: Please describe this section better. Provide more information and references (apart from that of Pillai et al., 2021).

• Statistical analysis: What was the purpose of conducting a statistical analysis? Besides, you do not discuss the findings in the results and discussion section.

•Usually, two antioxidant assays (minimum) are used to estimate the antioxidant capacity of an extract. The use of two assays is more likely to provide reliable information. I suggest performing one more assay, comparing and discussing your results.

5. Results and discussion

• Page 6 Phytochemical analysis: The following sentences are irrelevant

“In general, the distribution of various phytochemicals in leaves has been responsible for regulation of growth and development, nutrient storage activity, and biological activities (Kumar et al., 2023), while the distribution of various phytochemicals in leaves has been responsible for protective functions against herbivores and pathogens (Kumar et al., 2023).”

And

“In a previous study, anthelmintic activity of B. zeyheri has been reported (McGaw et al., 2007). The tannins present in B. zeyheri have been responsible for this anthelmintic activity since tannins have the ability to damage the protective outer layer of worms and interfere with nutrient absorption (McGaw et al., 2007).”

•DPPH assay: “The order of radical scavenging activity ofleaf extracts was E3 > E5 > E4 > E2 > E1.”

“The order of radical scavenging activity ofleaf extracts was E8 > E10 > E9 > E7 > E6”

Please check the accuracy of these sentences

•Table 2

How did you calculate the IC50 value of E1 and E6 extracts, since the % inhibition is lower than 50%.

•Figure 1: Please change the legend of Figure 1 to “Various extracts obtained from leaves and ascorbic acid”. Ascorbic acid is not an extract…..Besides, I think this legend is redundant. You can improve the figure caption to “Figure 1. DPPH radical scavenging activity of various extracts from leaves of B. zeyheri.” and stay only with this. Same for Figure 2.

•Page 8: “*The half-maximal inhibitory concentration (IC50) value is a concentration of the compound or extract that is required to inhibit antioxidant activity by 50%.”.* You should correct as follows:” ….that is required to reduce 50% of free radical activity”

• The discussion section is very limited. I do understand that literature data are limited, but it seems that you do not even discuss your data. You present only your results, but you do not try to relate the chemical content of each extract with the antioxidant activity. You do not also discuss your choice of using different extraction solvents, since according to your results, none of the extracts possess a notable antioxidant activity. You should justify your point of view regarding your results to help for future studies.