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 title sounds good, but inside the article it's not quite up to the mark. I think this type of paper is not suitable for this esteemed journal. Since

1. The topic and plant have already been studied previously, and the antioxidant activity is not good, as already mentioned by the author.

2. The chemical characterizations of plant extracts by at least HPLC nowadays are essential to match with their bioactivity.

3. Only wet qualitative analysis is not enough to publish in these standard journals.

4. The only new thing in this article is the plant part and its source, but previously, African species already reproved similar activity.

5. Moreover, there are lots of typing and grammatical mistakes, and it needs a good quantitative analysis of plant extracts and their bioassay discussion. For example, I just put here the abstract part to point out the mistakes…

Berchemia zeyheri belongs to the Rhamnaceae family. B. zeyheri has been used in~~the~~ traditional medicine to treat various ailments,~~ which~~ includ~~e~~ing backache, cough, diarrhea, dysentery, headache, rectal ulcers, gastrointestinal issues, and vomiting. The objectives of the present study were to analyze phytochemical constituents,~~ to~~ evaluate ~~the~~ antioxidant activity, and ~~to~~ determine IC50 values of hexane, chloroform, ethyl acetate, acetone, and methanol crude extracts obtained separately from the leaves and stem-bark of B. zeyheri. Qualitative ~~of~~ phytochemical analysis was performed ~~by~~ using established methods and procedures. Various solvent extracts were obtained ~~by means of~~through maceration and hot solvent extraction techniques. The assessment of antioxidant activity and ~~the~~ determination of half-maximal inhibitory concentration (IC50) values were achieved ~~by~~ using the 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging assay. ~~The presence of a~~Alkaloids, steroids, terpenoids, phenolics, tannins, flavonoids, coumarins, saponins, glycosides, carbohydrates, proteins, and phlobatannins were identified in these extracts. In the DPPH assay, the positive control (ascorbic acid) showed a radical scavenging activity of 87.84±0.01 at a concentration of 3000 µg/mL. The ethyl acetate extracts obtained from leaves and stem-bark exhibited the highest radical scavenging activity of 67.91±0.01% and 70.22±0.01%, respectively, at a concentration of 3000 µg/mL, whil~~ste~~ hexane extracts obtained from leaves and stem-bark

showed the least radical scavenging activity of 48.88±0.04% and 49.19±0.01%, respectively, at the same concentration. The IC50 value of ascorbic acid was found to be < 200 µg/mL in the DPPH assay. On the other hand, the methanol and hexane extracts obtained from leaves showed IC50 values of 1513.30 and 2759.00 ~~µg/mL~~ µg/mL, respectively, which were the lowest and highest IC50 values among the extracts from leaves. Similarly, the ethyl acetate and hexane extracts obtained from stem-bark showed IC50 values of ~~extracts~~ 1228.59 and 2647.28 µg/mL, respectively, which were the lowest and highest IC50 values among the extracts from stem-bark. From this study, we conclude that various extracts obtained from the leaves ~~of~~and stem-bark of B. zeyheri ~~possessed~~contain various classes of phytochemicals and ~~these extracts showed a~~exhibit weak to moderate radical scavenging activity. Further studies on this plant are required to explore its therapeutic applications.

Therefore, I can't recommend accepting this paper at this stage. It needs more quantitative analysis by HPLC or LC-MS and a rewrite of the whole paper, with special focus on how the chemical principles correlate with the antioxidant effect.