Reviewer's report

Title: Antioxidant, anti-adipocyte differentiation, antitumor activity and anthelmintic activities against Anisakis simplex and Hymenolepis nana of yakuchinone A from Alpinia oxyphylla

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Reviewer: Hui-Min Wang

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Antioxidant, anti-adipocyte differentiation, antitumor activity and anthelmintic activities against Anisakis simplex and Hymenolepis nana of yakuchinone A from Alpinia oxyphylla

Summary

This study explores the antioxidant and antitumor effects of yakuchinone A and explains the mechanisms for its inhibition of adipocyte differentiation and anthelmintic activities against H. nana and A. simplex. Yakuchinone A was demonstrated to have antioxidant abilities, lipid peroxidation inhibiting capacities, and potential cancer chemopreventive activities. The experiments also suggest that yakuchinone A inhibits adipogenesis and causes peristalsis activity in H. nana and nematicidal activity in A. simplex. The study reveals important insights about yakuchinone A, however, further improvements on the clarity in language and formatting is needed to better convey the findings.

Major Changes

1. There are some sections in the introduction that need to be better articulated. Specifically, there is major redundancy and content confusion about H. nana growth progression (lines 74-84; 114-116) and description of A. simplex (lines 97-102).

2. In the results (line 354) the scavenging capacity of 768.6% does not match Figure 1C’s values.

3. How about the high cytotoxicity to normal cells?

4. Preparation of H. nana adult worms and A. simplex require further clarification. For instance: how many times were the organisms washed? What is constituted as internal/external damage? What were the criteria for dividing H. nana by morphology - how were they divided?

5. “Assay of cestocidal activity of oscillation and peristalsis on H. nana” require further clarification. Was oscillation measured on a 30 point scale every second, for a total of 30 seconds? Furthermore, it was mentioned that “cestode activity was scored by…peristalsis”; please explain how peristalsis is quantified - was a 30 point scale also utilized?

6. I would like to suggest authors make a high correlation with each bio-property
of yakuchinone A for readers in discussion section. It should enhance the value of this manuscript.

Minor Changes

Overall, throughout the manuscript, there are several spelling, grammar, word, and tense misuse that may interfere with understanding the author’s intent. In order to avoid confusion, the authors should be careful of how they word the order of the content they’re describing and omit any redundant sentences.

1. Several spelling mistakes are present. Please make the following adjustments:
   1. (line 114): oyxphylla # oxyphylla
   2. (line 221): “thorough”
   3. (line 246): manufactures’ # “manufacturers’
   4. (Line 323): potted # plotted
   5. (Line 356): extend # extent

2. Grammatical recommendations:
   1. Line 56: Grammatical recommendation: “tissue injury, and is primarily”
   2. Line 69: What is meant by “general occasion”?
   3. Line 168: The word “was” occurring before “reacted” can be removed.
   4. Line 170-171: Unclear sentence, consider changing it to “The TEAC (trolox equivalent antioxidant capacity) of the reagents were calculated by comparing their reactivities to the standard antioxidant, trolox.
   5. Line 172-173: Unclear sentence, consider changing it to “The scavenging ability of yakuchinone A or trolox in DPPH. and ABTS.+ were calculated using the following equation:
   6. Line 174-175: Unclear sentence, consider changing it to “EC50 values were estimated from the percent inhibition versus concentration plot derived from the percentage scavenging activity. This data was shown as mean values”
   7. Line 179: Move first sentence to line 181, after “(TBARS).”
   8. Line 190: Unclear order of sentences, consider changing it to “The percentage inhibition was calculated using:....”
   9. Line 191: Unclear order of sentences, consider changing it to “EC50 values were estimated from the percentage inhibition versus concentration plot. This data was shown as mean values....”
   10. Line 203: Unclear wording, consider clarifying it with “3T3-L1 cells were maintained in DMEM medium”.
   11. Line 204: Can remove “were maintained”.
   12. Line 210: grammatical recommendation " 72 h in 10% FBS/DMEM with"
   13. Line 273: grammar mistake omit “These parts of” and begin sentence with The duodenum
   14. Line 342: grammar mistake: “as by product” should be “as a by product”
15. Line 386: Unclear order of sentence, consider changing it to “The amount of accumulated intracellular lipid droplets were compared in differentiated 3T3-L1 cells after treatment in a MDI mixture and differentiated cells.”

16. Line 387: Unclear order of sentence, consider changing it to “The amount of intracellular lipid droplets increased in differentiated 3T3-L1 cells, as shown by the Oil Red O staining (Figure 2A).”

17. Line 402: Unclear meaning “yakuchinone A inhibits and adipogenesis due”.

18. Line 507: Unclear meaning “This study is, however, the first that”.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests' below