

Review of: "Composition of ant venom (Hymenoptera: Formicidae) presenting real therapies and possibilities"

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This is an interesting manuscript about an important, emergent theme of research: the biotech potential of ant secretions. However, in order to be more useful, it needs extensive revision. Overall, the manuscript lacks focus and contains numerous conceptual mistakes. Perhaps the authors are not technical specialists in this theme of research, in which case they ought to seek partnership with someone more experienced in the field.

Some assorted illustrative issues: (i) surely, ants are not among the “largest number of species in the insect group”; (ii) the referenced sources cannot support the provided numbers of species in ants (particularly reference [2], which is unrelated to the topic); (iii) “The Queens who live from 10 to 20 years” is not true for ants “in general”; (iv) the information that “the species that produced the most powerful substance was *Solenopsis molesta*” does not make sense in the context and is completely unrelated to the provided literature references and figure. There are numerous such inconsistencies that would have to be corrected.

The language is at times too informal and at other times overly technical. There is no need to emphasize names or personal statements of scientists, as if this were some news press – please stick with their experimental findings and facts, and correctly cite the sources.

In terms of focus, the authors did not need to provide a lengthy overview of ants prior to presenting the theme of ant venoms. In fact, there is almost no introduction regarding venoms, which is greatly needed. What is known about ant venoms? Some central reviews are provided at the end of this report.

All images are lacking in graphic quality; perhaps they could be reworked as better versions. Examples of venom activities seem to have been selected at random to be presented, so that one topic does not connect with the others.

What are the “groups” of ants, and “some species”? What was the criterion for selection? Perhaps the authors should adopt some approach to presenting the ants, either as representatives of each subfamily, or as most medically important, etc.

Finally, they should describe more properly what is known about ant venoms and their activities, such as allergenicity (e.g., Zamith et al. 2018) or antibiofilm activities (e.g., Carvalho et al. 2019; Honorato et al. 2024) or as antibiotics (Silva et al. 2020). Cited references are quite disorganized, and many do not make much sense; for instance, references Rabeling et al. 2008 and Boudinot et al. 2022 are repeated several times without context.

I hope this report will support the authors in preparing an improved version of their manuscript.

Suggested references:

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