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AHPA BOTANICAL CONSTITUENTS CREDIBILITY GUIDELINE

ARE REPORTS OF CHEMICAL'S PRESENCE IN A PARTICULAR PLANT SPECIES CREDIBLE?

Approach: A determination as to whether a report of a chemical's occurrence in a particular plant species is credible requires an understanding of the discovery process and the documentation needed to establish that claim. An appropriate review includes evaluating if a verifiable plant identification was probable, determining whether the tools used for the separation and structural identification of the reported constituent were appropriate and that the data provided support this determination, and for quantitative claims, determining whether the analytical method used was validated for the matrix of interest and supported with proper QA/QC practices.

The following checklist provides items for consideration by appropriate experts in the evaluation of published papers, industry positions, or other reports. It is not a definitive list and is intended only as guidance for the determination of opinion by a group of reviewers with appropriate expertise for evaluating the report(s) at hand. An appropriate review panel may include, as needed, experts from the following disciplines: ethnobotany, taxonomy, analytical chemistry, natural products chemistry, pharmacology, etc.

CHECKLIST:

A. PLANT IDENTIFICATION

Yes/No/NA*

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| 1. Was there a proper taxonomic identification of the plant? | |
| 2. Was the analyzed plant part properly identified? | |
| 3. Was the methodology of plant identification (e.g., employed reference books, reference species; photographs) and the person identifying the plant and his credentials documented? | |
| 4. Was a voucher specimen prepared and saved? | |
| 5. Was the identification methodology appropriate? | |
| 6. Could the identification be corroborated by others? | |

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B. SAMPLE COLLECTION

Yes/No/NA*

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| 1. Did the publication disclose information about sample collection (e.g., geographical source, by who)? | |
| 2. Did the publication cite information relevant to the sample used in the study (e.g., wild/cultivated, crop year/season, cultivation/pesticide management practices)? | |
| 3. Can the provided collection information be corroborated by other available information? | |
| 4. Were the sample collection activities properly documented and transparent such that others could replicate the same sampling activities? | |
| 5. Was the sampling methodology consistent with good sampling practices and designed to minimize possible contamination or adulteration? | |
| 6. Were the samples stored and shipped properly? | |
| 7. Were proper chain-of-custody practices employed? | |
| 8. Was a sound QA/QC program implemented to support the sampling program (e.g., replicates, check for mix up with related species)? Did the QA/QC results meet criteria? | |
| 9. Was the identification methodology appropriate? | |

C. PLANT MATERIAL ANALYSIS

Yes/No/NA*

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|---|--|
| 1. Were any subsamples prepared by the research team representative of the original plant material (e.g., acceptable sampling procedure, homogenized samples)? | |
| 2. Were the laboratory procedures (e.g., extraction, separation, purification) used by the research team appropriate? | |
| 3. Analytical tools for structure elucidation:
a. Did the research team use proper analytical tools for structure elucidation of any chemical claimed to be a constituent of the plant material?
b. Did the data provided support this determination? | |
| 4. For quantitative claims:
a. Did the research team use a validated test method demonstrated to be applicable for the plant material/matrix of interest? | |

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C. PLANT MATERIAL ANALYSIS (Continued)

Yes/No/NA*

- b. Were the reported values consistent with the quantitative range of the method?
- c. Was there a need for a confirmatory procedure?
- d. Was the proper confirmatory test performed?
- e. Was the confirmatory test properly performed?

5. QA/QC program:

- a. Was a sound QA/QC program implemented by the research team (e.g., reference materials, spikes, replicates, blanks)?
- b. Did the QA/QC results meet criteria?

6. Was the possibility of false positives carefully and thoroughly considered?

D. DATA INTERPRETATION

Yes/No/NA*

- 1. Are the results reported by the researchers supported directly and conclusively by the data?
- 2. Did the researchers make assumptions regarding sample representativeness or compound identification and are these assumptions defensible?
- 3. Do the researchers suggest additional research needs to be conducted; and if so, are their conclusions preliminary and therefore not appropriate for release to the public?

E. CREDIBILITY CHECK

Yes/No/NA*

- 1. Are the results consistent with natural product chemistry principles (e.g., chemistry known to exist in this plant species and/or its genus, based on literature search and/or other resources)?
- 2. Was the quality/reputation of the source/publication considered?
- 3. Review number of times this work of the research team has been cited as a preliminary indicator that the scientific community "values" the work.
- 4. Are there other explanations for the reported results?
- 5. Are the cited references supportive of the claim of this work?

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F. ADDITIONAL CRITERIA (Please print)

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COMMENTS

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CONCLUSION

The data available appear to support the conclusion that the identified chemical is a constituent of the plant species under study.	
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OR	
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The data available do not appear to support the conclusion that the identified chemical is a constituent of the plant species under study.	
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* NA = Not Applicable. #Include comments, marked with the section letter and subsection number, in the comment box.