



Dose Contextualization as a Missing Pillar of Ethnopharmacological Documentation: Scientific and Translational Consequences

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Dear Editor

The Journal of Advancements in Ethnobotanical Sciences has always embraced and advocated for the integration of traditional knowledge with sound scientific procedures. Both ethnobotany and ethnopharmacology document the use of medicinal plants for therapeutic purposes across cultures, producing organized data for modern biomedical studies (Seydi et al., 2025). Ethnobotany and ethnopharmacology provide the bridge between the empirical practices of traditional medicine and modern research by producing systematically collected knowledge that can guide pharmacological research (Abbasi et al., 2025).

Recently, methodologies utilized for documenting the use of plants traditionally within ethnopharmacology have become increasingly structured through the utilization of quantitative measures and standardized interviews; however, to date, we see a similar lack of quantitative information regarding the dosage or quantity of a given plant administered within traditional practices.

Nevertheless, protocols to document the identity of the plant being administered, parts of the plant utilized, mode of preparation, method of administration, and therapeutic indications have improved substantially (Saki & Pourrahim, 2025). Unfortunately, core dosage parameters are

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frequently lacking from research data, as published ethnopharmacological reports often do not include the mass of plant material administered, the frequency of dosage, the duration of dosage, or any adjustments to the dose due to the patient's health condition or other individual characteristics. As noted above, without these parameters, it is impossible to determine whether a particular method of administration will produce effects consistent with those reported in the ethnopharmacological literature (Dutta et al., 2026).

Furthermore, the absence of dosage data also lends itself to the poor mechanistic evaluation of the pharmacological properties of the plant being studied. When researchers evaluate a medicinal plant's pharmacological properties based on in vitro or in vivo studies with the goal of validating the use of that plant in traditional medicine, they must frequently use arbitrary doses with respect to the dosage practices reported within the ethnopharmacological literature. This creates a disconnect between the scientific model and the human context, which it originally represented. A plant extract taken in an amount equal to 5 g of the plant material in dried form daily could be tested in rodents at 500 mg/kg body weight, a dose level that bears no reasonable relation to traditional exposures. These discrepancies affect the relevance of the experiment and make any extrapolations impossible. Therefore, the meaning of the phytochemical findings becomes questionable because there is no information about the concentration required to produce the observed biological effect or whether the compound reaches the threshold level required to produce such an effect. Compounds found in a medicinal plant can only be considered pharmacologically relevant when their concentration at the target site is sufficiently high to produce the effect. Without knowledge of traditional doses, one cannot estimate realistic exposures to individual phytoconstituents. The risk associated with these discrepancies includes an overestimation of the importance of some phytoconstituents that are not likely to achieve active concentrations and an underestimation of some potentially toxic constituents because of high exposure. Replicability becomes problematic when the experimental design does not properly

replicate traditional use. Experiments based on traditional use cannot be properly replicated unless the dose information is provided that makes traditional use relevant to the experiments.

In addition to the laboratory context, the problem of lack of dose contextualization has important ramifications for translation from ethnopharmacology to clinical settings and beyond. In clinical research, the lack of knowledge of traditional dosages makes the process of establishing dosage more challenging because there is no framework from which researchers can start their investigation and must rely on arbitrary starting points, thus introducing additional uncertainty into the process of drug development. Using traditional data in dose-finding clinical studies could facilitate research. Concerning herbal medicine, documentation of doses used is not just beneficial but mandatory under certain regulations (Fan et al., 2012). The European Medicines Agency and World Health Organization (WHO) have established that traditional dosage ranges need to be provided as an element of the justification of the use of traditional herbal medicinal products; therefore, the availability of such information is crucial for product registration (Jain et al., 2024, Peschel & Alvarez, 2018, Qu et al., 2018). In pharmacovigilance, it is impossible to analyze reports of toxicity or lack of efficacy of drugs or herbs when information regarding doses used is absent.

Filling this gap requires concerted efforts at several levels. At the study design level, ethnopharmacologists are recommended to adopt standard procedures for collecting quantitative data related to doses. Such data must include, at the bare minimum, the amount (in grams/volume) of raw plant material used per dose, the means of preparation and quantity produced when available, dosage frequency, period of use, and any recommendations in traditional medicine related to varying doses depending on patient attributes. In cases where reported data utilize non-standardized units, scientists must convert them into metric units through quantification. At the journals and editing level, scholarly journals like the Journal of Advancements in Ethnobotanical Sciences have the ability to promote change by requiring the inclusion of dose information as a criterion for publication in ethnopharmacological articles.

Ethnopharmacology has a unique place in biomedical research because it preserves and analyzes all accumulated wisdom on therapeutics from ancient human cultures. However, for this tradition-based body of knowledge to become useful and applicable at the scientific level, it must be recorded according to the standards typical of pharmacology. Dosing is critical in pharmacological research because it allows for reliable results and the appropriate application of findings in practice. Without dosing, most ethnopharmacological publications remain descriptive rather than analytical. We hope that scientists and all those involved in research will appreciate the significance of dose recording.

Declarations Conflict of Interest

The authors declare no conflicts of interest.

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Consent for Publications

The authors certify that that this work in its final form has been thoroughly reviewed and approved for publication.

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Ethical Considerations

Not applicable. This letter does not report new studies involving human participants, animal subjects, or patient data.

AI Use Disclosure

The authors confirm that QuillBot AI and Grammarly were used strictly for language editing, grammar correction, and paraphrasing assistance during the preparation of this manuscript. Specifically, these tools were appl

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