

Perspective paper

# Seeking a transdisciplinary and culturally germane science: The future of ethnopharmacology

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## Abstract

Publication of the 100th issue of the *Journal of Ethnopharmacology* offers a strategic juncture to reflect on what, intellectually and practically, substantiates ethnopharmacology as a domain of inquiry and what its future might be. We characterize ethnopharmacology through the diversity of its practitioners, and review critiques that challenge researchers to set their sights on a theory-driven and context-sensitive study of the pharmacologic potential of species used by indigenous peoples for medicine, food, and other purposes. The conclusion suggests themes that will inspire an integrated, transdisciplinary ethnopharmacology for the future.

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## 1. Introduction: defining ethnopharmacology

Publication of the 100th issue of the *Journal of Ethnopharmacology* (JEP) offers a strategic juncture to reflect on what, intellectually and practically, substantiates ethnopharmacology as a domain of inquiry and what its future might be. By one, compelling logic, ethno- (Gr., culture or people) pharmacology (Gr., drug) is about the intersection of medical ethnography and the biology of therapeutic action, i.e., a transdisciplinary exploration that spans the biological and social sciences. This suggests that ethnopharmacologists are professionally cross-trained – for example, in pharmacology and anthropology – or that ethnopharmacological research is the product of collaborations among individuals whose formal training includes two or more traditional disciplines. In fact, very little of what is published as ethnopharmacology meets these criteria.

A primary difficulty in defining and projecting a future for ethnopharmacology is to identify the objectives of a largely virtual field whose self-identified membership represents, in

addition to commercial entities, a diverse suite of academic and applied disciplines. Departments or degree-granting programs designated specifically as ethnopharmacology do not exist, it is primarily represented by published investigators trained in pharmacology, anthropology, botany, and pharmacognosy. Contributions are made as well by historians of science, clinicians, ethnographers, agronomists, biochemists, researchers in veterinary medicine, and others. This multi- (but not trans) disciplinarity has challenged efforts to harmonize objectives and integrate methodologies (Elisabetsky, 1986; Prinz, 1990; Etkin, 1996, 2001; Etkin and Ross, 1991, 1997). For the future, one would hope that the multivocality of the various disciplines that contribute to ethnopharmacology will create a dynamic tension that encourages dialogue and collaboration.

The present discussion is part of that dialogue and projects the perspective on ethnopharmacology that was articulated in the formation of the International Society for Ethnopharmacology (ISE), and reinforced in the objectives of its official journal. The *Journal of Ethnopharmacology* JEP was inaugurated in 1979 with a statement of mission that defined ethnopharmacology as “a multidisciplinary area of research concerned with the observation, description, and

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experimental investigation of indigenous drugs and their biological activity” (Rivier and Bruhn, 1979). The description of scope emphasized the balance and breadth of disciplinary representation across a range of natural and social sciences:

The Journal of Ethnopharmacology will publish original articles concerned with the observation and experimental investigation of the biological activities of plant and animal substances used in the traditional medicines of past and present cultures. The journal will particularly welcome interdisciplinary papers with an ethnopharmacological, an ethnobotanical, or an ethnochemical approach to the study of indigenous drugs. Reports of anthropological and ethnobotanical field studies fall within the journal’s scope. Studies involving pharmacological and toxicological mechanisms of action are especially welcome. (*JEP* Frontmatter)

## 2. Objectives of ethnopharmacology research

Mission statement notwithstanding, during the first 2 decades of its existence most of the articles published in the *JEP* were not interdisciplinary. Two retrospective content analyses of the journal revealed for the periods 1979–1996 and 1996–2000 an increasing number of articles dedicated exclusively or primarily to pharmacology and pharmacognosy. More significant to the present discussion is the consistently small number of multi- or interdisciplinary articles, 4–6% of the total published (Etkin and Ross, 1991, 1997; Etkin, 2001). In view of the highly skewed over-representation of pharmacology and pharmacognosy in the contents, one could argue that the *JEP* failed to establish the unique position it sought among natural products journals. Privileging bioscientific ideologies reproduces a Euro-American tradition that discounts traditional ways of knowing and managing resources, i.e., this conveys the idea that medicines become meaningful only when validated by pharmacologic inquiry. In an integrated ethnopharmacology of the future, bioscience should be only one of several lenses through which to understand how people manage health.

## 3. Critical reviews and challenges for an integrated ethnopharmacology

In the last 15 years, critical reviews of the field of ethnopharmacology challenged researchers to strive for a more holistic, theory-driven, and culture- and context-sensitive study of the pharmacologic potential of (largely botanical) species used by indigenous peoples for medicine, food, and other purposes (Elisabetsky, 1991; Balick et al., 1996; Svarstad and Dhillon, 2000; Etkin, 2001; Heinrich and Gibbons, 2001; Laird, 2002; Stepp et al., 2002). The foundation of these critiques is that much of what is reported as ethnopharmacological research is comprised by decontext-

ualized catalogues of plants and lists of phytoconstituents and/or pharmacologic properties. While this work is technically competent bioscience that provides foundational data, it lacks synthesis—only a very small percentage of ethnopharmacology researchers reflect on the range of botanicals, the environments from which they are drawn, and the diverse chemistries they embody. Also, there is little incremental growth of knowledge within and beyond this corpus of evidence. Intellectually and substantively, each study is a stand-alone. Many laboratories are satisfied to report the results of the 15 or 20 species examined and then, rather than build on that knowledge, test the therapeutic potential of another group of plants against the same, or even a different, biological target. Few researchers in ethnopharmacology seem to be interested in the people whose knowledge and identity are embodied in these plants (Elisabetsky and Nunes, 1990). While some studies are based on plants drawn from indigenous pharmacopoeias, most of what is published as ethnopharmacology has a weak, if any, ethnographic component. While laboratory-exclusive studies provide valuable baseline data, they disappoint from the standpoints of both practice and theory—few researchers seek to make order of the iterative lists of active plants and their constituents, and fewer still offer theoretical advances (Elisabetsky, 2002). Further, only a small number of these studies offer insights into the experience of real people in specific cultural and eco-political settings, or project the findings against some higher level of abstraction that helps us to understand human–plant interactions (Elisabetsky and Setzer, 1985).

On the basis of these critiques, as well as deliberations within and outside the ISE, in 2001, the *JEP* Board issued a revised mission statement to underscore the importance of integrated, theory- and issue-driven research in ethnopharmacology:

The Journal of Ethnopharmacology publishes original articles concerned with the observation and experimental investigation of the biological activities of plant and animal substances used in the traditional medicine of past and present cultures. The journal will particularly welcome interdisciplinary papers with an ethnopharmacological, an ethnobotanical or an ethnochemical approach to the study of indigenous drugs. Reports of anthropological and ethnobotanical field studies fall within the journal’s scope. Studies involving pharmacological and toxicological mechanisms of action are especially welcome. Clinical studies on efficacy will be considered if contributing to the understanding of specific ethnopharmacological problems. The journal also welcomes review articles in the above mentioned fields especially on novel methodologies relevant to disease states. (*JEP* Frontmatter)

An editorial by the ISE President at that time (Heinrich, 2001) stressed the importance of addressing the social and political implications of research design and application, especially for indigenous peoples whose knowledge and resources have been appropriated in the course of natural

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