

Special Issue: Ethnobotany for the Future: Theory, Methods, and Social Engagement (Part 1)

INA VANDEBROEK¹, AND ULYSSES PAULINO ALBUQUERQUE²

¹ Department of Life Sciences and Caribbean Centre for Research in Bioscience (CCRIB), Faculty of Science and Technology, The University of the West Indies, Mona, Kingston 7, Jamaica

² Laboratório de Ecologia E Evolução de Sistemas Socioecológicos (LEA), Departamento de Botânica, Universidade Federal de Pernambuco, Av. Prof. Moraes Rego, Cidade Universitária, Recife, Pernambuco 1235, 50670-901, Brazil

*Corresponding author; e-mail: ina.vandebroek@uwimona.edu.jm

The special issue titled “*Ethnobotany for the Future: Theory, Methods, and Social Engagement*” was guest edited by Prof. Ulysses Paulino Albuquerque from the Universidade Federal de Pernambuco in Brazil. The call for papers sought scholarly contributions that address emerging perspectives and future challenges in ethnobotany, aiming to include a wide range of submissions, from studies with theoretically grounded frameworks to those based on new methodological tools, or case studies of ethical partnerships with local communities. The intention was to go beyond conventional cataloging of useful plants, and, instead, address hypotheses or questions through original research or literature review. The papers featured in this Special Issue will be spread across two print issues, with the first installment comprising a collection of six papers.

In the first paper, Brad Walters critically assessed the challenges of interdisciplinary research involving people, plants, and environmental change. He highlights complications that may arise in collaborations among professionals with diverse expertise, including practical challenges such as communication issues and theoretical disagreements. Walters reflects on his solo research experiences in the Caribbean and the Philippines, arguing that working alone

fosters humility in acknowledging knowledge limits, encourages pragmatic problem-solving approaches, and leads to focused application of methods. He proposes that solo researchers, by using theory sparingly and employing clear concepts, can effectively communicate with a broad audience, contrasting this with collaborative challenges faced by multidisciplinary teams. Some may find Walters’ perspective controversial, as it contradicts the current emphasis on multidisciplinary teams for addressing complex research questions. Nevertheless, this paper offers thought-provoking material for discussions within research groups and across the discipline.

The paper by Sandrine Gallois and colleagues emphasizes the critical need to understand diverse knowledge and values associated with plants in the context of global change and the pursuit of a more sustainable future. Their study highlights the frequently neglected ethnobotanical knowledge contributions of children, particularly among the Baka forager-horticulturalists in Cameroon. Employing a comprehensive mixed-methods approach, their study investigated the medicinal plant knowledge of Baka children, revealing substantial and distinctive insights through diverse field methods. The authors advocate for the development of methodological tools tailored to and involving children, underscoring the importance of prioritizing childhood perspectives in shaping future ethnobotanical approaches. This article addresses a gap in the ethnobiology literature regarding the traditional

ecological knowledge (TEK) of children, questioning the assumption that this knowledge is invariably a condensed subset of the TEK held by adults.

Timothy Johns and Lindiwe Sibeko explored the globally under-studied topic of women's reproductive health and perinatal plant knowledge. Their primary aim was to gain insights into plant knowledge and its implications for women's reproductive health, pluralistic health systems, and human adaptation. Additionally, the authors advocate for improved protocols in data collection, data deposition, and ethical considerations for secondary data analyses within ethnobotany. Their comprehensive study involved searching for and analyzing more than 29,000 plant use reports from Africa, Asia, and Europe, with a focus on hypothesis testing. Johns and Sibeko discuss the challenges and limitations of extracting and interpreting dispersed information across various publications, emphasizing the importance of refining compilation and analysis methods. This work is particularly fascinating as it incorporates the theoretical framework developed by Johns on the chemical ecology origin and evolution of human medicine, which is still under-discussed in the ethnobiology community.

Ulysses Albuquerque and his team focused on how local medical systems are influenced by the interplay between humans and surrounding biota. They argue that despite numerous descriptive studies into the structure (composition) of these medical systems, there is an ongoing need to improve our understanding of their functionality, specifically how species of plants, fungi, or animals are integrated and sustained within these systems. Through a narrative literature review, the team explored the dynamics of local medical systems, incorporating insights from social learning processes and knowledge variation across different spatial scales. They propose that the social-ecological theory of maximization, which posits that humans develop social-ecological systems to enhance their survival by balancing costs and benefits, can predict the incorporation and diverse utilization of natural resources within these systems. The authors identify existing knowledge gaps and propose future research directions to further unravel the functionality and resilience of local medical systems.

Souza and colleagues explored human selection of plant resources in the Caatinga, an ecoregion characterized by a semi-arid climate and unique vegetation in northeastern Brazil. They selected several sites along a rainfall gradient in the Caatinga to study useful species richness, use versatility (the diversification of plant uses), and utilitarian redundancy (the duplication of uses among different plant species). Surprisingly, there was no significant difference in useful species richness along the rainfall gradient, and the redundant use of various plants also remained consistent across different precipitation levels. These results challenge conventional assumptions, suggesting that the availability of species in the environment may not be a decisive factor in the selection of useful plant resources. In addition, the authors emphasize the importance of testing hypotheses and examining the effects of gradients, even within a relatively limited geographic range. This study enriches the literature by seeking to comprehend how ecological dynamics can impact human natural resource selection, thereby challenging preconceived expectations from current scholarly knowledge.

In the final paper of the first installment of six, Ramos and colleagues investigated the plant selection process among rural communities in the Brazilian Caatinga region to understand how specific functional plant traits, including but not limited to leaf texture, leaf size, wood hardness, deciduousness, tree height, tree diameter, and wood quality, influence these communities' choices of plants used for fuel, construction, and forage. The study identified several key functional plant traits that guide decision-making in the Caatinga, and potentially in other semi-arid tropical regions around the world. These results support the hypothesis that people's plant selection choices are influenced by functional plant traits that align well with their specific subsistence needs. The authors call for integrating ethnobotany and functional ecology, emphasizing the connection between functional plant traits and local ecological knowledge (LEK) as a tool for providing deeper insights into the intricate relationships between humans and biodiversity.

Collectively, these six papers demonstrate that the future of ethnobotany involves a continued commitment to understanding the dynamic interactions between peoples and plants, integrating traditional wisdom with contemporary scientific

approaches, and contributing to the broader goal of acknowledging, championing for, and conserving biocultural diversity. The papers significantly deepen our understanding of human presence on this planet and its impacts on biodiversity and social-ecological systems. Finally, by challenging conventional assumptions, these papers encourage critical reflection on research practices, and promote a more comprehensive and integrated view of the relationships between humans and the environment.

Guest Editor for this Special Issue: Prof. Ulysses Paulino Albuquerque

Short Bio: I am deeply fascinated by comprehensively understanding the myriad dimensions and impacts of human interactions with the natural world, which is why my research approach is inherently interdisciplinary. My academic interests span across various fields including anthropology, evolutionary psychology, cultural evolution, human behavioral ecology, ethnobiology, human ecology, ecology, and evolution. I strive to unravel the intricate dynamics of how humans co-evolve with their environment and other species. My focus lies in exploring the

evolutionary development of the human mind, specifically how it has adapted to navigate the complexities of our world. Furthermore, I delve into the mechanisms underlying the transmission and storage of information, including memory, as well as strategies for the exploration and management of natural resources. Additionally, I am intrigued by the evolution of scientific methodologies and scientometrics, along with the cognitive and cultural evolution within the human species.

