

Exploring the Ethnobotanical Use of Plants in HIV/AIDS Treatment

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ABSTRACT

This review investigates the role of ethnobotany in the management of HIV/AIDS, focusing on the historical use of medicinal plants, their biochemical properties, and their integration into modern healthcare. Ethnobotanical practices, rooted in indigenous knowledge systems, have long addressed viral infections, including symptoms associated with HIV/AIDS. The study highlights plants with documented antiretroviral properties, detailing compounds such as quercetin and epigallocatechin gallate, which exhibit potential synergistic effects when used with antiretroviral therapies. Despite challenges in clinical validation and regulatory acceptance, opportunities exist to bridge traditional and modern medicine through collaborative research, policy reform, and community engagement. This synthesis underscores the importance of preserving traditional knowledge while advancing scientific inquiry to enhance therapeutic options for people living with HIV/AIDS.

Keywords: Ethnobotany, HIV/AIDS, medicinal plants, antiretroviral properties, indigenous knowledge, traditional medicine.

INTRODUCTION

Exploring the ethnobotanical use of plants in the treatment of HIV/AIDS is an acknowledgment of indigenous knowledge of flora of great importance in treating several illnesses that have been part of every human culture since before written history. The use of plants for health care has a history of at least 60,000 years. There are many reports from different geographic positions around the world where people have been using plant extracts to alleviate the symptoms of the common cold, flu, and other viral infections. Now is probably the most opportune time for further investigations into this approach. The global impact of medically untreatable viruses has shown itself many times over the past century. Ethnobotany is the study of the history of indigenous peoples with respect to their knowledge and use of plants. It is a new branch of science that emanates from botany and ethnology. Taking the two most common definitions, in its simplest form, ethnobotany is the study of how plants are used by the people of a particular culture. A more complex and widely used definition is ethnobotany as the scientific investigation of plant use by indigenous and traditional cultures. It is important to understand the vast knowledge of these people so that we can fulfill our dream from millennia ago to use only that which we need and therefore avoid side effects of both environmental and manmade toxins. For people with a diagnosis of HIV/AIDS, safe and effective treatment options are limited. Although the use of marijuana has been proposed for many signs and symptoms associated with the condition, the use of proven antiretroviral and other agents that conform to the rigors of conventional medical clinical trials is paramount within any CAM philosophy [1, 2].

Historical Perspectives on Ethnobotanical Medicine

The ethnobotanical use of plants in treating ailments has been a continuous part of human history for thousands of years. Evidence from paleobotany suggests that plants, once exploited as a dietary supplement, were gradually used for their medicinal properties. This history is greatly responsible for the sophisticated herbal traditions found around the world today. Numerous systems have been developed

based on this historical plant knowledge, and many cultures integrate plants into numerous paradigms of healthcare. While the scientific evidence for these traditional plant uses is often characterized as "anecdotal" by the scientific community, patients across the globe often incorporate these plants into their treatment, as these traditions have integrated plants into sacred cultural belief systems [3, 4]. Historical evidence is flush with examples where plant knowledge was used in the successful treatment of a specific disease or ailment without the aid of modern pharmaceuticals. Large heritage medical traditions often rely heavily on detailed plant knowledge, and relatively newer medical literature often bears substantial influences from the long tradition of plant medicine. Despite the amazing historical case studies available, ethical and practical considerations have forced many discontinued ethnobotanical medical practices, and outdated colonial archives remain. Nonetheless, new studies are regularly being published as the historical significance of the ethnobotanical knowledge base remains vibrant. The fact that correlates to ethnobotany's unique status is that this historical knowledge enables the preservation of rapid sociocultural change [5, 3].

Ethnobotanical Knowledge Systems and Practices

Ethnobotanical knowledge is integrally informed by people's direct use of plants and plant-based products. A central aspect of this is the shared knowledge of how medicinal plants are collected, prepared, administered, and monitored. Knowledge systems on medicinal plants differ greatly from one culture to another. Anthropological work has shown the numerous, diverse pathways that local communities follow in documenting and developing knowledge that extends beyond the production and use of plants as medicine. These research traditions focus on both oral traditions surrounding healing practices and the role of formalized systems of knowledge that exist within particular communities [6, 7]. There are different knowledge hierarchies and forms of transmission that translate and perpetuate knowledge of plants which are used as medicine and food. One key aspect is the role of community in the production, transmission, and conservation of indigenous knowledge. For instance, the conservation of knowledge of medicinal plants is also highly dependent on the practitioners who use them, often referred to as traditional healers. Indeed, it is argued that knowledge held by traditional healers is more degenerated over time, as it reflects the distinct way in which environmental conditions, ecological knowledge, and sociocultural belief systems interrelate in shaping healing practices. A variety of methods and approaches have been proposed to document such knowledge systems. At an early stage, there was a tendency to concentrate on developing methods to stimulate informants to share their knowledge [8, 9]. These methods were mostly applicable in areas of the world with primary oral traditions of knowledge transmission. More recently, an emphasis has fallen on more participatory approaches to research, acknowledging both the dynamic nature of knowledge and the need to evaluate local practices and their potential to be scientifically validated and applied to problems of public health. A number of anthropologists and ethnoecologists, with a focus on understanding environmental cognition and classification systems, have also contributed to the development of tools used to assess ethnobotanical knowledge. Across all these different approaches, it is emphasized that our evaluation of the potential role of these varied knowledge systems in the development of therapies to cure or inhibit various diseases be informed by an understanding of the socio-cultural and ecological contexts in which such knowledge is produced. Such a view subsumes a complex assessment of the interacting individual, cultural, environmental, and historical factors that converge to shape a community's ethnobotanical practices. In the context of HIV and AIDS, the same is true. The use of plants for treating HIV/AIDS is embedded within a particular socio-historical context that informs the way in which people living with HIV/AIDS experiment with and use ethnobotanicals. While many plants are used as part of sustainable strategies for greater physical, emotional, and spiritual well-being, the reality of life with HIV in a highly resource-poor context means that many people living with HIV/AIDS do not have consistent access to the foods, medicines, and treatments they feel are best for them. Moreover, rapid modernization, deforestation, and rapid urbanization have put such knowledge at risk. It is essential that the promotion of the use of plants for managing HIV/AIDS be kept in the broader context of conserving indigenous knowledge [10, 11].

Plants With Antiretroviral Properties

For hundreds of years, traditional healers have used plants to treat symptoms associated with acquired immunodeficiency syndrome. In addition, plants have been documented in ethnobotanical surveys to be used to manage symptoms of human immunodeficiency virus. A list of 44 plants from the United States, Brazil, Mexico, Northern Thailand, South Africa, Southern Africa, and Uganda that have documented use by healers to treat at least one of these symptoms is available. In previous reports, 50 plants used by

African healers to treat children with AIDS were mentioned. These plants have been, or are being, tested for their ability to kill HIV [12, 13]. In this review, we present the chemicals in some of these plants that belong to different chemical families and that belong to the same generalized chemical family that kills HIV. To date, 255 known antiretroviral agents are found in 160 of these plants, representing a variety of plant species from both herbaceous and woody plant families, shrubs, bushes, and trees. Of the plants that have been tested in animal or clinical models, they have been shown to be efficacious in the treatment of several different members of the HIV virus. All the plants listed, except *Uncaria tomentosa*, *Caesalpinia paraguariensis*, and *Aatakonda*, contain either quercetin, epigallocatechin, or epigallocatechin gallate, compounds that selectively kill HIV. Quercetin, epigallocatechin, and epigallocatechin gallate currently belong to a class of compounds and herbs presently being studied as an integrative treatment with antiretroviral therapies [14, 15].

Challenges and Opportunities in Utilizing Ethnobotanicals for HIV/AIDS Treatment

A major challenge in accessing and utilizing this invaluable conglomeration of healing traditions and ethnobotanical knowledge in modern healthcare systems is the struggle to overcome the regulatory hurdles for safety and efficacy. One of the barriers to using traditional plant medicine is the perception that it is less safe compared to pharmaceuticals. There is also limited acceptance of traditional medicine by biomedically trained practitioners without an intentional effort to address the barriers. Because of innovation through pharmacology, we also possess the ability to establish the safety, toxicity, pharmacodynamics, pharmacokinetics, and efficacy of botanicals, including those used globally by traditional healers. In the last few decades, this type of work has not been pursued, leading to a commonly held belief that there is not sufficient research investigating the use of ethnobotanicals in HIV therapy. Readdressing these interconnected relationships in addressing modern diseases, embracing new research to act on these deeply ingrained dualisms, and acknowledging the widespread use of traditional healing knowledge systems supported by every major religion globally could lead to better treatment experiences and outcomes for people living with HIV [16, 17]. Because of our failure to engage in this collaborative, translational work, we continue to construct a world where there is a deep and growing chasm between scientists and the public. In summary, there is an urgent demand to increase clinical and basic science research on traditional medicine and its potential in combination with antiretroviral therapy. Opportunities also exist to integrate traditional healers to offer culturally relevant therapies while minimizing harm. While some Western medical professionals are becoming involved in such research, there is limited research investigating true partnerships between traditional healers and Western medical scientists. This research is expected to open the way for the identification of new drugs, especially with the advent of genomic research, which could drive the discovery of bioactive compounds found in traditional medicinal plants used in combination with antiretroviral therapy. This review highlights the vision created by the partnership between Western-based science and traditional healers and the potential role of regional community support and policy to support this integration. The involvement of traditional healers would create easier access to the remedies for the communities they serve. Exploring traditional medicinal plants and the clinical management and use of traditional healer remedies in addition to antiretroviral therapy is currently under-researched. In this review, we have amalgamated the few studies conducted around ART management and traditional healers and argued from a clinical and scientific perspective, from the anecdotal experience of the research team accessing herbs from traditional healers, and as supported by other available literature. Some of these ethnobotanicals have the potential to manage food and drug interactions and side effects of ART. Clinical studies are urgently needed to investigate the possible role of traditional ethnomedicines in pathogen combat, immune restoration, and modulating the side effects of ART. There is also an urgent need for the development of patient empowerment education modules through which they could be educated about the existence of these traditional medicines and their utilization for obtaining a better quality of life [18, 19].

CONCLUSION

The exploration of ethnobotanical practices in managing HIV/AIDS offers a valuable framework for addressing the global health challenge posed by the disease. Historical evidence and contemporary research affirm the potential of medicinal plants in symptom alleviation and therapeutic support. However, significant challenges persist, including skepticism from the biomedical community, regulatory barriers, and the erosion of traditional knowledge due to modernization. Bridging these gaps requires interdisciplinary collaboration, rigorous scientific validation, and policy initiatives to promote sustainable integration of ethnobotanical remedies. By fostering partnerships between traditional healers,

researchers, and healthcare providers, we can preserve indigenous knowledge while unlocking novel therapeutic pathways. Ultimately, such integrative approaches may lead to improved healthcare equity, accessibility, and outcomes for people living with HIV/AIDS globally.

REFERENCES

1. Pattanayak S. PLANTS IN HEALTHCARE: PAST, PRESENT AND FUTURE.. Exploratory Animal & Medical Research. 2021. [researchgate.net](https://www.researchgate.net)
2. Giannenas I, Sidiropoulou E, Bonos E, Christaki E, Florou-Paneri P. The history of herbs, medicinal and aromatic plants, and their extracts: Past, current situation and future perspectives. InFeed additives 2020 Jan 1 (pp. 1-18). Academic Press. [\[HTML\]](#)
3. Garcia S. Pandemics and traditional plant-based remedies. A historical-botanical review in the era of COVID19. Frontiers in plant science. 2020 Aug 28;11:571042.
4. Chaachouay N, Zidane L. Plant-derived natural products: a source for drug discovery and development. Drugs and Drug Candidates. 2024 Feb 19;3(1):184-207.
5. Petran M, Dragos D, Gilca M. Historical ethnobotanical review of medicinal plants used to treat children diseases in Romania (1860s–1970s). Journal of ethnobiology and ethnomedicine. 2020. [springer.com](https://www.springer.com)
6. Lei D, Al Jabri T, Teixidor-Toneu I, Saslis-Lagoudakis CH, Ghazanfar SA, Hawkins JA. Comparative analysis of four medicinal floras: Phylogenetic methods to identify cross-cultural patterns. Plants, People, Planet. 2020 Nov;2(6):614-26.
7. Alemu M, Asfaw Z, Lulekal E, Warkineh B, Debella A, Sisay B, Debebe E. Ethnobotanical study of traditional medicinal plants used by the local people in Habru District, North Wollo Zone, Ethiopia. Journal of Ethnobiology and Ethnomedicine. 2024 Jan 4;20(1):4. [springer.com](https://www.springer.com)
8. Maccarone MC, Magro G, Albertin C, Barbetta G, Barone S, Castaldelli C, Manica P, Marcoli S, Mediati M, Minuto D, Poli P. Short-time effects of spa rehabilitation on pain, mood and quality of life among patients with degenerative or post-surgery musculoskeletal disorders. International Journal of Biometeorology. 2023 Jan;67(1):29-36. [springer.com](https://www.springer.com)
9. Nye RA. Degeneration and the medical model of cultural crisis in the French Belle Epoque. InPolitical Symbolism in Modern Europe 2020 Jul 24 (pp. 19-41). Routledge.
10. Boyd S. Heroin and the illegal drug overdose death epidemic: A history of missed opportunities and resistance. International Journal of Drug Policy. 2021 May 1;91:102938.
11. Macevicius C, Gudiño Pérez D, Norton A, Kolla G, Beck-McGreevy P, Selfridge M, Kalicum J, Hutchison A, Urbanoski K, Barker B, Slaunwhite A. Just have this come from their prescription pad: the medicalization of safer supply from the perspectives of health planners in BC, Canada. Drugs: Education, Prevention and Policy. 2024 Nov 1;31(6):658-68.
12. Nyakundi AO, Maroko GM, Mokua GN. Communication, Culture, and the Sexual Behaviours of FSWs and MSM: Incongruence in HIV/AIDS Interventions in Kenya. The Journal of Development Communication. 2024 Jun 28;35(1):55-67.
13. Anywar G, Kakudidi E, Byamukama R, Mukonzo J, Schubert A, Oryem-Origa H. Medicinal plants used by traditional medicine practitioners to boost the immune system in people living with HIV/AIDS in Uganda. European Journal of Integrative Medicine. 2020 Apr 1;35:101011. [\[HTML\]](#)
14. Prinsloo G, Marokane CK, Street RA. Anti-HIV activity of southern African plants: Current developments, phytochemistry and future research. Journal of ethnopharmacology. 2018 Jan 10;210:133-55.
15. Kaur R, Sharma P, Gupta GK, Ntie-Kang F, Kumar D. Structure-activity-relationship and mechanistic insights for anti-HIV natural products. Molecules. 2020 Apr 29;25(9):2070.
16. Ikinyom N, Lamwaka AV, Malagala AT, Ndyomugenyi EK. Ethnobotanical study of nutraceutical plants used to manage opportunistic infections associated with HIV/AIDS in Acholi sub-region, Northern Uganda. Tropical Medicine and Health. 2023 Sep 1;51(1):50. [springer.com](https://www.springer.com)
17. Richard K, Andrae-Marobela K, Tietjen I. An ethnopharmacological survey of medicinal plants traditionally used by the BaKalanga people of the Tutume subdistrict in Central Botswana to manage HIV/AIDS, HIV-associated conditions, and other health conditions. Journal of Ethnopharmacology. 2023 Nov 15;316:116759.

18. Skewes MC, Gonzalez VM, Gameon JA, FireMoon P, Salois E, Rasmus SM, Lewis JP, Gardner SA, Ricker A, Reum M. Health disparities research with American Indian communities: The importance of trust and transparency. *American Journal of Community Psychology*. 2020 Dec;66(3-4):302-13. [nih.gov](https://pubmed.ncbi.nlm.nih.gov/)
19. Allali I, Abotsi RE, Tow LA, Thabane L, Zar HJ, Mulder NM, Nicol MP. Human microbiota research in Africa: a systematic review reveals gaps and priorities for future research. *Microbiome*. 2021 Dec 15;9(1):241. [springer.com](https://www.springer.com)

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