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Medicinal Plants of the Andes: Ethnobotanical and Pharmacological Review

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Abstract

The Andes Mountains, stretching over 7,000 kilometers across South America, are one of the most biodiverse regions on Earth. Home to over 20,000 endemic plant species, the Andes have long served as a cradle of traditional medicine. Indigenous communities such as the Quechua, Aymara, and Nasa have developed rich ethnobotanical knowledge systems, using native plants to treat ailments ranging from digestive disorders to infections and chronic diseases. This review explores the ethnobotanical significance and pharmacological potential of key medicinal plants in the Andean region, highlighting their role in traditional healing and modern drug discovery.

***Keywords:** Translational ethnopharmacology; Ethnobotany; Healer informants*

Introduction

Traditional medicine in the Andes is deeply intertwined with cultural beliefs, spiritual practices, and ecological knowledge. Healers, midwives, and elders—often referred to as curanderos or Thë' Wala—serve as custodians of plant-based remedies. Medicinal plants are harvested from diverse ecosystems, including montane forests, páramos (high-altitude moorlands), and valleys. Remedies are prepared as teas, poultices, tinctures, or inhalants, and are used to treat physical and spiritual ailments alike [1].

In the Colombian Andes, for example, the Nasa ethnic group utilizes over 100 medicinal plant species, with Asteraceae and Lamiaceae being the most represented families. These plants are cultivated in home gardens (Tul) or gathered from wild habitats, reflecting a deep connection between biodiversity and cultural identity [2].

Sacred in Andean culture, coca leaves are chewed or brewed to alleviate altitude sickness, fatigue, and digestive issues. While controversial due to its alkaloid content, coca remains central to indigenous medicine and rituals. Its active compound, cocaine, has

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been used in anesthetics and neurological research. Widely used in Ecuador and Peru, matico is known for its antiseptic, anti-inflammatory, and wound-healing properties. Traditionally, its leaves are applied topically or brewed into teas to treat skin infections, ulcers, and respiratory issues. Modern studies confirm its antimicrobial activity against Staphylococcus aureus and Pseudomonas aeroginosa [3].

This tree produces a red sap used to treat gastrointestinal disorders, wounds, and viral infections. Indigenous healers use it as a topical antiseptic and internal remedy for ulcers and diarrhea. Pharmacological research has identified taspine, a compound with anti-inflammatory and antiviral properties [4].

Used for skin conditions, inflammation, and immune modulation, calaguala is traditionally consumed as a tea or applied as a poultice. Recent studies suggest its antioxidant properties and potential in photoprotection and dermatology. The bark of Cinchona officinalis contains quinine, historically used to treat malaria. Native to the Andean forests, cascarilla remains a symbol of traditional medicine and global pharmacology. Its discovery revolutionized antimalarial treatment and inspired synthetic derivatives like chloroquine [5].

Conclusion

The Andes Mountains harbor a treasure trove of medicinal plants, shaped by centuries of indigenous knowledge and ecological diversity. Ethnobotanical and pharmacological research reveals the therapeutic potential of species like matico, sangre de drago, and cascarilla. As global interest in natural products grows, the Andes offer both inspiration and caution—reminding us to honor traditional wisdom, protect biodiversity, and pursue ethical science. Bridging traditional medicine and modern pharmacology is not just a scientific endeavor, but a cultural and ecological imperative.

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