



ETHNOMEDICAL STUDY OF TRADITIONAL INDONESIAN MEDICINAL PLANT

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<p>Info Article</p> <p>Received : 01 Oktober 2025</p> <p>Revised : 02 November 2025</p> <p>Accepted : 02 Desember 2025</p> <p>Publication : 30 Desember 2025</p>	<p>Abstract: <i>The title of study is Ethnomedical Study Of Traditional Indonesian Medicinal Plant. This study aimed to review the ethnomedicinal use of moringa leaves (Moringa oleifera Lam.) among Indonesian communities and to analyze its relevance to scientific evidence related to phytochemical composition, pharmacological activities, and safety aspects. The research employed a literature review method with a descriptive-analytical approach by examining scientific articles, ethnomedicinal books, and research reports obtained from Google Scholar, PubMed, and ScienceDirect databases. The results indicate that moringa leaves are traditionally used to maintain health, enhance immune function, promote lactation, reduce inflammation, and assist in blood glucose management. Scientific findings support these traditional uses through the identification of bioactive compounds and relevant pharmacological activities, while also indicating that moringa leaves are generally safe when consumed at traditional doses. This study highlights the importance of ethnomedicine as a scientific foundation for the rational development of evidence-based traditional medicine.</i></p>
<p>Keywords: <i>Ethnomedicine, Moringa Leaves, Moringa Oleifera, Traditional Medicinal Plants, Phytochemistry, Pharmacologic al Activity</i></p> <p>Kata Kunci: Etnomedisin, Daun Moringa, Moringa Oleifera, Tanaman Obat Tradisional, Fitokimia, Aktivitas Farmakologis</p>	<p>Abstrak: Penelitian ini berjudul Ethnomedical Study Of Traditional Indonesian Medicinal Plant. Penelitian ini bertujuan untuk mengkaji penggunaan etnomedisin daun kelor (Moringa oleifera Lam.) oleh masyarakat Indonesia serta menganalisis kesesuaiannya dengan bukti ilmiah terkait kandungan fitokimia, aktivitas farmakologis, dan aspek keamanan. Metode penelitian yang digunakan adalah studi pustaka dengan pendekatan deskriptif-analitis melalui penelusuran artikel ilmiah, buku etnomedisin, dan laporan penelitian dari basis data Google Scholar, PubMed, dan ScienceDirect. Hasil kajian menunjukkan bahwa daun kelor secara tradisional digunakan untuk menjaga kesehatan, meningkatkan daya tahan tubuh, melancarkan ASI, mengurangi peradangan, dan membantu pengendalian kadar gula darah. Temuan ilmiah mendukung penggunaan tersebut melalui identifikasi senyawa bioaktif dan aktivitas farmakologis yang relevan, serta menunjukkan bahwa daun kelor relatif aman dikonsumsi pada dosis tradisional. Kajian ini menegaskan relevansi etnomedisin sebagai dasar ilmiah pengembangan obat tradisional berbasis bukti.</p>
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INTRODUCTION

Indonesia is recognized as one of the countries with the highest biodiversity in the world and possesses a long-standing tradition of utilizing medicinal plants as part of traditional healthcare systems. This practice has developed through empirical experiences passed down across generations and is closely linked to local wisdom in disease prevention and health maintenance. In recent years, there has been a renewed global interest in traditional medicine due to concerns regarding the side effects, accessibility, and cost of synthetic drugs, positioning ethnomedicine as a relevant approach in modern healthcare research (Susanti et al., 2019). *Moringa oleifera* Lam., commonly known as moringa or kelor, is one of the medicinal plants widely utilized by Indonesian communities. Empirically, moringa leaves are consumed to enhance immune function, promote lactation, reduce inflammation, and assist in glycemic control. The use of moringa leaves has been documented among various ethnic groups across Indonesia, with diverse preparation methods such as decoctions, fresh leaves, or powdered forms, reflecting cultural adaptations in traditional medicine practices (Syarif et al., 2020).

From a scientific perspective, moringa leaves have been reported to contain a wide range of bioactive compounds, including flavonoids, alkaloids, saponins, tannins, and phenolic compounds. These phytochemical constituents are associated with various pharmacological activities, such as antioxidant, anti-inflammatory, antidiabetic, and antimicrobial effects. Several experimental and clinical studies have demonstrated that these activities support the traditional claims regarding the therapeutic potential of moringa leaves (Gopalakrishnan et al., 2016).

Despite the increasing number of pharmacological studies on *Moringa oleifera*, comprehensive reviews that integrate ethnomedicinal practices in Indonesian communities with scientific evidence on phytochemical composition, pharmacological activity, and safety aspects remain limited. Therefore, this article aims to review the ethnomedicinal use of moringa leaves in Indonesia and analyze its relevance with available scientific evidence, providing a scientific basis for the rational and safe utilization of moringa leaves in traditional and complementary medicine.

METHOD

This study employed a literature review method with a descriptive-analytical approach. This approach was used to systematically review and synthesize scientific

publications related to the ethnomedicinal use of moringa leaves (*Moringa oleifera* Lam.) in Indonesia and to evaluate their relevance to available scientific evidence. The object of this study was moringa leaves (*Moringa oleifera* Lam.) as a traditional medicinal plant used in ethnomedicinal practices by Indonesian communities.

The units of analysis included ethnomedicinal uses, phytochemical constituents, pharmacological activities, and safety aspects of moringa leaves as reported in scientific literature. Data were collected through literature searching in scientific databases, including Google Scholar, PubMed, and ScienceDirect. The keywords used were *Moringa oleifera*, moringa leaves, ethnomedicine, traditional medicinal plants, phytochemistry, pharmacological activity, and toxicity. Selected articles were limited to publications from the last 10–15 years and written in English or Indonesian.

Data analysis was conducted using a qualitative descriptive method by categorizing and comparing information from selected literature based on ethnomedicinal use, phytochemical content, pharmacological activity, and safety of moringa leaves. Reference management and citation were performed using Mendeley, while manuscript preparation was carried out using Microsoft Word.

RESULTS AND DISCUSSION

Results

Ethnomedicinal Uses of *Moringa oleifera* Leaves in Indonesia.

The results of the literature review indicate that *Moringa oleifera* leaves are widely used in ethnomedicinal practices across various regions in Indonesia. Empirical uses include improving general health, enhancing immune function, promoting lactation, reducing inflammation, managing diabetes, and accelerating recovery after illness. These uses have been reported among different ethnic groups, with preparation methods varying from boiled leaves and fresh vegetables to dried leaf powder, reflecting cultural adaptation in traditional healthcare practices (Zakaria et al., 2012).

The widespread utilization of moringa leaves highlights their importance within the Indonesian ethnomedicinal system. This finding is consistent with ethnomedicine theory, which emphasizes the role of local knowledge and cultural context in shaping traditional health practices. The diversity of preparation methods also suggests flexibility in traditional medicine, allowing the same plant to be adapted to different cultural and practical needs (Tilaar, 2014).

Phytochemical Composition of *Moringa oleifera* Leaves

Analysis of the reviewed literature shows that moringa leaves contain a wide range of bioactive phytochemical compounds, including flavonoids, alkaloids, saponins, tannins, phenolic compounds, and steroids. Flavonoids such as quercetin and kaempferol are reported as dominant compounds and are known for their strong antioxidant properties. These phytochemicals contribute significantly to the medicinal potential of moringa leaves (Moyo et al., 2012).

The presence of these compounds supports the traditional belief that moringa leaves function as a health-promoting and disease-preventive agent. From a scientific perspective, the high antioxidant and phenolic content provides a biochemical explanation for the traditional use of moringa leaves in maintaining health and preventing degenerative diseases. These findings are consistent with previous phytochemical studies conducted in different geographical regions (Rahman et al., 2009).

Pharmacological Activities and Scientific Evidence

The reviewed studies demonstrate that moringa leaf extracts exhibit various pharmacological activities, including antioxidant, anti-inflammatory, antidiabetic, and antibacterial effects. Antioxidant activity plays a crucial role in neutralizing free radicals, thereby protecting cells from oxidative stress, which is associated with chronic diseases. This activity supports the traditional use of moringa leaves for enhancing vitality and overall health (Sreelatha & Padma, 2009).

Several studies have reported antidiabetic effects of moringa leaf extracts through mechanisms such as improving insulin sensitivity and reducing glucose absorption. These findings align with the ethnomedicinal use of moringa leaves in managing blood glucose levels. Additionally, anti-inflammatory and antibacterial activities provide scientific justification for the traditional application of moringa leaves in treating infections, wounds, and inflammatory conditions (Coppin et al., 2013)

Safety and Toxicity Considerations

Safety evaluation is an essential aspect of traditional medicine development. The reviewed literature indicates that moringa leaves are generally safe when consumed at traditional doses. Acute and subchronic toxicity studies in experimental animals reported no significant toxic effects at commonly used concentrations. These findings

support the long- standing traditional use of moringa leaves as food and medicine (Asare et al., 2012).

However, some studies emphasize the importance of dosage control, particularly for concentrated extracts or long-term consumption. Excessive intake may potentially cause adverse effects, highlighting the need for rational and standardized use. Therefore, integrating traditional knowledge with scientific safety evaluation is crucial for the sustainable development of moringa-based traditional medicines (Awodele et al., 2012)

Relevance to Scientific Development and Implications

The integration of ethnomedicinal data with phytochemical and pharmacological evidence demonstrates a strong correlation between traditional uses of moringa leaves and modern scientific findings. This alignment reinforces the scientific validity of ethnomedicine as a valuable source for drug discovery and development. Moreover, moringa leaves show potential as a candidate for standardized herbal medicine and functional food products.

These findings also provide implications for future research, including clinical studies, standardization of dosage forms, and evaluation of long-term safety. By bridging traditional knowledge and scientific evidence, this study contributes to the development of evidence-based traditional medicine and supports the preservation of ethnomedicinal knowledge in Indonesia.

CONCLUSION

Based on the results of the literature review, it can be concluded that moringa leaves (*Moringa oleifera Lam.*) play an important role in the ethnomedicinal system of Indonesian communities and are widely utilized as a traditional medicinal plant. Empirical uses of moringa leaves for health maintenance, immune enhancement, lactation promotion, inflammation reduction, and blood glucose management have been reported among various ethnic groups, with diverse preparation methods reflecting strong local wisdom and cultural adaptation in traditional healthcare practices.

Scientific evidence indicates that moringa leaves contain a wide range of bioactive phytochemical compounds, including flavonoids, alkaloids, saponins, tannins, and phenolic compounds, which contribute to key pharmacological activities such as antioxidant, anti- inflammatory, antidiabetic, and antibacterial effects. Furthermore, safety evaluations suggest that moringa leaves are generally safe when used at

traditional doses, although long-term consumption and the use of concentrated extracts require careful dosage control and standardization. Overall, this review confirms a strong consistency between ethnomedicinal practices and modern scientific findings and highlights the potential of moringa leaves for further development as evidence-based traditional medicine and functional food products.

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