

Plant-Based Healthcare among Kinwat Tribes

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Abstract:

Plant-based healthcare forms an important part of the traditional health practices of many tribal communities in India. In forest-dependent societies, knowledge of medicinal plants is closely connected with everyday life, local ecology, culture, and intergenerational learning. Kinwat taluka of Nanded district in Maharashtra is an important region for studying such traditional knowledge because of its forest resources and the presence of tribal communities including Gond, Kolam, Andh and Pradhan. The present paper examines the role of plants in traditional healthcare among the tribes of Kinwat through a descriptive and documentary analysis of published ethnobotanical evidence. Earlier research conducted in the Kinwat forest documented ethnomedicinal practices based on information obtained from tribal herbal practitioners, while another study reported 40 plant species commonly used by tribal communities of the Kinwat region. The documented uses include remedies associated with fever, cough, digestive disorders, skin problems, wounds, rheumatism, dysentery and other common ailments. The study also examines methods of preparation such as juice, paste, powder, extract and direct application of plant parts. The findings indicate that plant-based healthcare represents a collection of herbal remedies and a community-based knowledge system transmitted

through generations. The study emphasizes that traditional use are not automatically be considered proof of clinical efficacy or safety. Scientific identification, phytochemical investigation, pharmacological evaluation, conservation, ethical documentation and community participation are necessary. The paper concludes that the traditional plant knowledge of Kinwat tribes has cultural, ecological and potential healthcare implication and deserves responsible documentation and protection.

Keywords: Plant-based healthcare, Kinwat, tribal communities, ethnobotany, medicinal plants, traditional knowledge, herbal remedies, Nanded, Maharashtra etc.

Introduction:

Plants have played an important role in human healthcare since ancient times. Long before the development of modern pharmaceutical systems, communities depended upon locally available plants for the treatment of common illnesses, wounds and other health problems. In many indigenous and tribal societies, this knowledge continues to exist as part of an orally transmitted cultural tradition. Traditional medicine is not simply a collection of remedies. It includes knowledge of plants, methods of collection, preparation, dosage, administration, seasonal availability and the cultural beliefs associated with healing. The World Health Organization recognizes traditional medicine as an important health resource but emphasizes that its use are supported by appropriate evidence, quality control and safety measures. The WHO Global Traditional Medicine Strategy 2025–2034 specifically emphasizes strengthening the evidence base, ensuring safety and quality, protecting traditional knowledge and supporting culturally respectful healthcare.

India possesses considerable biological and cultural diversity, and tribal communities have contributed substantially to the traditional knowledge of medicinal plants. Such knowledge is especially significant in forest-dependent communities where local plants are readily accessible and healthcare resources are limited. Kinwat taluka of Nanded district in Maharashtra provides an important setting to study plant-based healthcare. Census records identify Kinwat as a separate sub-district of Nanded district, and the

Census of India provides specific Scheduled Tribe population data for the Kinwat sub-district. Previous ethnobotanical investigations have established that the Kinwat forest region contains valuable traditional medicinal knowledge. Biradar and Ghorband conducted a survey during 2006–2008 and collected first-hand information from herbal practitioners belonging to Gond, Kolam, Andh and Pradhan communities. Their study reported 25 plant species belonging to 22 families and 25 genera for ethnomedicinal applications.

Similarly, Kulkarni and Sontakke documented 40 plant species commonly used by tribal communities in the Kinwat region. Their study reported that the plants were used particularly for conditions such as fever, diarrhoea, dysentery, skin diseases, snake bites, wounds, piles and rheumatism. These studies demonstrate that Kinwat possesses a significant body of plant-based traditional healthcare knowledge. However, much of this knowledge remains dispersed orally transmitted and insufficiently documented. The present paper attempts to examine plant-based healthcare among Kinwat tribes from a social, cultural, ecological and healthcare perspective.

Study Area- Kinwat Taluka:

Kinwat is situated in the north-eastern part of Nanded district in Maharashtra. The region is associated with forest landscapes and rural and tribal settlements. The availability of forest resources has historically influenced the livelihood practices of local communities. The tribal communities of the region have developed a close relationship with their natural environment. Plants are used as sources of food, fuel and other forest products and as components of traditional healthcare.

The Census of India identifies Kinwat as sub-district 04096 within Nanded district. Official Census datasets also separately provide Scheduled Tribe population information for the Kinwat sub-district. The forest environment is therefore important to understand the healthcare practices of local tribal communities. Knowledge of plants is generally associated with familiarity with local vegetation, seasons, plant parts and traditional methods of preparation.

Tribal Communities and Traditional Healthcare:

Traditional healthcare among tribal communities is generally community-oriented. Knowledge is possessed by elderly persons, traditional healers, experienced women, forest gatherers and other members of the community.

In Kinwat, published ethnomedicinal research has specifically recorded knowledge among Gond, Kolam, Andh and Pradhan communities. Biradar and Ghorband obtained information from herbal practitioners concerning plant preparation, dosage and methods of administration.

This knowledge is understood as a form of local ecological knowledge because it requires familiarity with the surrounding environment. A person must recognize a plant, identify the useful part, understand the appropriate season for the collection and know how the material is traditionally prepared. Such knowledge is usually transferred through observation and practice rather than through formal textbooks. Parents and grandparents teach younger members about useful plants, while traditional healers possess specialized knowledge. The knowledge system has three closely connected dimensions:

1. knowledge of plants;
2. knowledge of health and illness; and
3. knowledge of the local environment.

Plant-based healthcare in Kinwat studied as a cultural knowledge system rather than merely as a list of medicinal plants.

Objectives of the Study:

1. To examine the importance of plant-based healthcare among tribal communities of Kinwat.
2. To identify the major categories of health conditions for which medicinal plants are traditionally used.
3. To examine traditional methods of plant preparation and administration.

4. To understand the role of intergenerational transmission in preserving medicinal plant knowledge.
5. To examine the relationship between forest resources and tribal healthcare.
6. To identify the major challenges affecting traditional plant-based healthcare.
7. To suggest measures for responsible documentation, conservation and scientific investigation of traditional medicinal knowledge.

Methodology

Research Design

The present research follows a descriptive, qualitative and documentary research design. It is based primarily on published ethnobotanical literature concerning Kinwat and the Nanded forest region. The decision to use documentary analysis is important because it avoids presenting unverified numerical information as a new field survey. The principal Kinwat evidence includes published ethnobotanical investigations of traditional healers and tribal communities.

Sources of Data

The study used published ethnobotanical research on Kinwat, published research concerning tribal medicinal practices in Nanded districts, Census of India information concerning Kinwat, WHO documents concerning traditional and herbal medicine and relevant literature concerning conservation and traditional knowledge as secondary sources. The major Kinwat study by Biradar and Ghorband was based on field investigation during 2006–2008 and recorded 25 plant species used by herbal practitioners belonging to Gond, Kolam, Andh and Pradhan communities. A separate study by Kulkarni and Sontakke documented 40 plant species commonly used by tribal communities of the Kinwat region.

Method of Analysis

The available evidence was organized under the following analytical categories, tribal community, plant-based healthcare, health condition; plant part used, preparation method, method of administration, cultural importance, ecological importance and conservation concerns.

Kulkarni and Sontakke subsequently reported 40 plant species used by tribal communities of the Kinwat region. Their research specifically mentions the treatment of fever, diarrhoea, dysentery, skin diseases, snake bites, wounds, piles and rheumatism. The two studies demonstrate that medicinal plant knowledge in Kinwat is not restricted to one community or one category of disease. Instead, it covers a broad range of everyday health concerns. The documented Kinwat literature indicates the use of medicinal plants for several categories of health conditions.

Table 1

Major Health Conditions Reported in Kinwat Ethnobotanical Literature

Health condition	Nature of traditional use
Fever	Plant-based preparations used traditionally for relief
Cough	Leaf or plant preparations used in traditional remedies
Digestive problems	Plant preparations used for diarrhoea, dysentery and indigestion
Skin diseases	External application of plant materials
Wounds	Plant-based external applications
Rheumatism	Traditional plant remedies for joint and body-related complaints
Piles	Traditional preparations involving selected plant parts
Snake bite	Certain plants traditionally associated with treatment
Ear-related complaints	Plant preparations traditionally applied externally
Respiratory complaints	Some plants traditionally used for cough and asthma

General weakness	Certain plant preparations used as traditional tonics
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The important point is that these uses represent **traditional claims and practices**, not scientifically established treatments. Modern scientific validation is necessary before any plant can be recommended clinically.

Diversity of Plant Parts Used:

Traditional plant-based healthcare does not necessarily involve the whole plant. Different communities select different parts depending on the intended use. The documented Nanded tribal literature demonstrates the use of leaves, roots, flowers, fruits, seeds, bark, rhizomes, tubers, gums and whole plants. For example, research in the Nanded forest region documents the traditional use of leaves, roots, flowers, fruits, seeds, rhizomes and other plant materials in different preparations. The selection of particular plant parts reflect accumulated local experience. However, harvesting roots, tubers or whole plants can have greater consequences for plant survival than harvesting leaves or fruits. Therefore, sustainable collection practices are important.

Traditional Methods of Preparation

Plant-based healthcare involves several methods of preparation.

Table 2

Common Traditional Preparation Methods

Preparation method	Traditional form
Paste	Fresh plant material ground and applied externally
Juice	Fresh leaves or other parts crushed and expressed
Powder	Dried plant material powdered for use
Extract	Plant material processed to obtain a concentrated liquid
Decoction	Plant material boiled in water

Infusion	Plant material soaked in water
Direct application	Fresh plant part applied directly to affected area
Oil preparation	Plant material combined with oil for external use
Mixed preparation	Plant material combined with honey, milk or another traditional medium

Published ethnomedicinal research from the Nanded region provides examples of leaf juices, powders, pastes, extracts and external applications. The preparation process is itself part of the traditional knowledge system. Simply identifying a plant is not sufficient; knowledge holders may also know how the plant should be processed.

External and Internal Applications:

Plant-based healthcare among tribal communities are broadly divided into external and internal applications.

External applications- These include:

- application of paste to the skin;
- application to wounds;
- application for skin complaints;
- application to areas affected by pain;
- use of plant-based oil preparations.

Internal applications:

These include:

- juices;
- powders;
- extracts;
- decoctions;
- preparations mixed with honey or other traditional substances.

The distinction is important because internal administration creates different safety considerations from external application. Plant toxicity, dosage, interactions with medicines and contamination must be evaluated before traditional preparations are used as formal healthcare products.

WHO specifically emphasizes that traditional medicine should be evaluated for quality, safety and effectiveness and that natural origin does not by itself establish safety.

Intergenerational Transmission of Knowledge

Traditional medicinal knowledge is primarily a knowledge system transmitted through generations. Earlier research in the Nanded forest region reported that tribal communities possessed considerable ethnomedicinal knowledge that had been transmitted from one generation to another.

The transmission process occurs through:

- observation;
- oral instruction;
- participation in plant collection;
- family practices;
- interaction with traditional healers;
- community experience;
- seasonal forest activities.

This makes elderly knowledge holders particularly important for future documentation. However, modernization, migration, changes in occupation, formal education, reduced forest access and declining interest among younger generations contribute to loss of traditional knowledge.

Women and Plant-Based Healthcare:

Women have an important and sometimes under-documented role in household healthcare. In many traditional societies, women participate in:

- collection of plants;
- preparation of household remedies;
- care of children;
- treatment of minor ailments;
- Preservation of knowledge regarding edible and medicinal plants.

Future Kinwat studies should therefore ensure that women knowledge holders are adequately represented. A gender-sensitive approach would make the documentation more comprehensive and prevent the medicinal knowledge of women from remaining invisible in formal research.

Forests as a Community Health Resource

The relationship between forests and tribal healthcare is particularly important in Kinwat. For forest-dependent communities, biodiversity provides multiple resources simultaneously. A single plant may have food, medicinal, cultural or economic importance. Traditional healthcare therefore depends partly upon continued access to biodiversity. The conservation of medicinal plants is consequently not only an environmental issue. It is also a public health, cultural and livelihood issue.

Traditional Healthcare and Accessibility:

One reason traditional plant-based remedies remain important is their local accessibility. When a plant is available near a settlement, community members are able to obtain it without travelling long distances. Traditional remedies are prepared within households. However, accessibility should not be confused with proven effectiveness. A remedy is culturally trusted and locally available while still requiring scientific evaluation. The

appropriate approach is to reject traditional healthcare automatically to document, investigate and regulate it responsibly.

Potential for Scientific Research:

The medicinal plants traditionally used in Kinwat provide useful subjects for pharmacological and phytochemical investigation. Earlier research on Kinwat specifically suggested that ethnomedicinal plants may provide information relevant to phytochemical research. Scientific research examines:

1. correct botanical identification;
2. phytochemical composition;
3. antimicrobial activity;
4. antioxidant activity;
5. anti-inflammatory activity;
6. toxicity;
7. pharmacological activity;
8. dosage;
9. possible drug interactions;
10. Clinical effectiveness.

Such researches are conducted collaboratively and ethically rather than extracting community knowledge without recognition or benefit sharing.

Representative Documentation of Plant-Based Healthcare

The following table presents the nature of plant-based healthcare documented in the Kinwat/Nanded ethnobotanical literature. It is intended as a documentation table, not as a recommendation for self-treatment.

Table 3**Representative Traditional Plant-Based Healthcare Practices**

Plant / plant group documented in the literature	Plant part reported	Traditional healthcare context
Medicinal herbs	Leaves	Fever, cough and other common complaints
Shrubs	Roots	Selected internal or external preparations
Trees	Bark/gum	Digestive and weakness-related traditional uses
Grasses	Roots/rhizomes	Respiratory and other traditional uses
Leafy medicinal plants	Leaves	Skin and inflammatory complaints
Flower-bearing plants	Flowers	External applications and other traditional preparations
Fruit-bearing plants	Fruits	Digestive and oral-health related traditional uses
Seed-bearing plants	Seeds	Selected internal preparations
Whole medicinal plants	Whole plant	Traditional treatment of selected ailments

The Kinwat literature reports 40 commonly used plant species, while the earlier Kinwat forest study documented 25 ethnomedicinal species based on information from tribal herbal practitioners.

Traditional Knowledge as Cultural Heritage

Plant-based healthcare should also be understood as cultural heritage. Traditional knowledge represents the accumulated experience of several generations. It reflects how communities understand health; illness; nature; seasons; forests; plants; food; spirituality and community relationships. When a medicinal plant disappears from a forest, the loss may involve more than biodiversity. Associated knowledge about its identification, collection and use may also disappear. Conservation programmes should consider both biological diversity and cultural knowledge.

Challenges to Plant-Based Healthcare

Loss of Traditional Knowledge: The first major challenge is the gradual loss of orally transmitted knowledge. When elderly knowledge holders die without transferring their knowledge, valuable information may disappear.

Decline in Forest Biodiversity: Deforestation, land-use change, overharvesting and environmental degradation can reduce the availability of medicinal plants.

Lack of Scientific Validation: Many traditional claims have not been tested through systematic pharmacological and clinical research.

Safety Concerns: The assumption that "natural means safe" is misleading. Herbal medicines may contain biologically active compounds and may cause adverse effects or interact with other medicines. WHO therefore emphasizes appropriate quality control, safety monitoring and evidence-based use.

Incorrect Plant Identification: A locally known plant may have several vernacular names. Incorrect botanical identification can result in inappropriate use.

Commercial Exploitation: Traditional knowledge is commercially exploited without appropriate recognition or benefit sharing.

Generational Change: Younger members of communities may increasingly depend on modern healthcare and may have less opportunity to learn traditional plant knowledge.

Conservation of Medicinal Plants:

Conservation is both ecological and community-oriented.

Table 4

Suggested Conservation Measures:

Area	Suggested measure
Forest conservation	Protect natural medicinal plant habitats
Community participation	Involve tribal communities in conservation
Documentation	Record traditional knowledge with informed consent
Nursery development	Establish community medicinal plant nurseries
Sustainable harvesting	Promote collection methods that do not destroy plants
School education	Introduce local biodiversity awareness
College research	Encourage ethnobotanical documentation
Botanical identification	Involve qualified botanists
Scientific research	Conduct phytochemical and pharmacological studies
Digital documentation	Develop secure community-controlled databases
Benefit sharing	Ensure communities benefit from commercial applications

India's biodiversity framework emphasizes conservation, sustainable use and fair and equitable benefit sharing associated with biological resources and knowledge.

Need for an Interdisciplinary Approach:

Plant-based healthcare is not studied adequately through a single discipline. A comprehensive study involves Botany; English and humanities; Anthropology; Sociology;

Public health; Pharmacology; Ayurveda; Environmental science; Tribal studies; Geography and Economics. For a researcher who is not a botany specialist, the safest approach is to document community-reported use and traditional knowledge, while botanical identification and medicinal claims are verified by qualified specialists. This distinction is particularly important. A researcher accurately document what a community reports without claiming that a plant has clinically proven therapeutic effects.

Major Findings:

1. Plant-based healthcare is an established component of traditional knowledge among tribal communities in the Kinwat region.
2. Published research specifically documents ethnomedicinal knowledge among Gond, Kolam, Andh and Pradhan communities of Kinwat forest.
3. An earlier Kinwat study documented 25 medicinal plant species from 22 families and 25 genera.
4. A later study of the Kinwat region reported 40 plant species commonly used by tribal communities.
5. Traditional plant-based healthcare addresses a wide range of common health problems, including fever, cough, digestive disorders, skin diseases, wounds, rheumatism and other ailments.
6. Different plant parts, including leaves, roots, flowers, fruits, seeds, rhizomes and whole plants, are traditionally used.
7. Preparation methods include juice, paste, powder, extract and external application.
8. Traditional medicinal knowledge is largely transmitted through generations.
9. Forest biodiversity is closely connected with the continuation of plant-based healthcare.
10. The traditional knowledge system has potential value for future scientific research, but traditional use alone cannot establish therapeutic efficacy.
11. Conservation of medicinal plants and conservation of traditional knowledge must be considered together.
12. Future documentation should follow ethical principles and respect community rights and benefit-sharing requirements.

Suggestions

Based on the findings, the following suggestions are made:

Systematic Documentation: A comprehensive ethnobotanical database is prepared for Kinwat. It should include the local name, botanical name, family, plant part used, traditional indication, preparation method and source of information.

Community Participation: Traditional healers and knowledge holders should be treated as knowledge partners rather than merely as respondents.

Botanical Verification: Every plant recorded in future research should be identified and authenticated by a qualified botanist.

Scientific Validation: Promising plants are subjected to phytochemical, pharmacological and toxicological investigation.

Conservation: Medicinal plant gardens and community nurseries should be established in suitable tribal villages and educational institutions.

Documentation of Women's Knowledge: Women knowledge holders should be actively included in future surveys.

Youth Participation: Young tribal members should be encouraged to learn local plant knowledge through community-based biodiversity programmes.

Ethical Protection: Traditional knowledge should not be commercially exploited without appropriate recognition, consent and benefit sharing.

Integration with Public Health: Where evidence supports safety and effectiveness, traditional practices may be considered within appropriate healthcare frameworks rather than being used indiscriminately.

Digital Preservation: Audio interviews, photographs, botanical records and community narratives may be digitally preserved with appropriate access controls and community consent.

Conclusion:

Plant-based healthcare among the tribes of Kinwat represents an important component of indigenous knowledge and community life. The available literature demonstrates that tribal communities have developed detailed knowledge concerning locally available plants and their traditional applications. Research from Kinwat has documented ethnomedicinal practices among Gond, Kolam, Andh and Pradhan communities and has recorded numerous plants used for common health conditions. Another study of the Kinwat region documented 40 commonly used medicinal plant species. The importance of this knowledge extends beyond traditional medicine. It represents an interaction between people, plants, forests and culture. It also demonstrates the importance of biodiversity for community wellbeing. The safe development of plant-based healthcare requires botanical authentication, chemical analysis, toxicity studies, pharmacological research and, where appropriate, clinical investigation. WHO's current traditional medicine strategy similarly emphasizes evidence, safety, quality, sustainability, cultural respect and community participation.

The future of plant-based healthcare in Kinwat therefore depends on a balanced approach. Traditional knowledge should be respected and preserved, medicinal plants should be conserved, communities should retain their rights over their knowledge, and promising traditional practices should be investigated scientifically. Kinwat's plant-based healthcare tradition should not be viewed merely as a remnant of the past. With ethical documentation, community participation, biodiversity conservation and scientific validation, it becomes an important area of research linking traditional knowledge, environmental sustainability and evidence-based healthcare.

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