



Research Article

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ETHNOBOTANICAL SURVEY OF HERBAL PLANTS USED FOR VARMA TREATMENT IN KANNAPADI VILLAGE, SALEM (DT) TAMIL NADU, INDIA

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ABSTRACT

Ethnobotany plays an important role in the development and conservation of biodiversity. It is the study of the relationship between tribal people and medicinal plants. The aim of the study was to document the herbal plants used for Varma treatment in Kannapadi village, Salem, and to record the medicinal flora and traditional knowledge of Kurumba tribes regarding indigenous plants used in Varma treatment. This survey was carried out among the tribes of Kannapadi hills, Salem district, Tamil Nadu. Information was collected from the people through face-to-face interviews during field trips, conducted over a period of 4 months. In this survey 96 medicinal plants species belonging to 50 families were documented. The maximum number of medicinal plants belonging to the family Fabaceae are represented by 11 species, including two Indigofera species, Tephrosia one species Abrus one species, among the 96 species. The medicinal plants were mostly used to cure bone fractures, fever, rheumatism, pain, inflammation, and wounds. The documented plants were given in a table that includes respective families along with their botanical name, habit, Tamil name and ethnomedicinal uses. This study will contribute to the search for new drugs and treatments. Pharmacological studies on the plants with high percentage use values and fidelity levels are needed to validate their uses in the management of the said therapeutic applications. Further research on the isolation and characterization of the plant active compounds could lead to the discovery of new potential drugs.

Keywords: Ethnobotanical studies, Kurumba Tribes, Medicinal plants, Kannapadi hills, Indigenous Knowledge.

INTRODUCTION

India is having a rich diversity of medicinal plants. This wild source is gradually reduced day by day. Therefore, there is a necessity for the conservation and sustainable use of medicinal plants. In the future, ethnobotany may play an important role in sustainable development and biodiversity conservation. For many centuries, treatment with medicinal plants was the only remedy available for numerous ethnic groups, and nowadays, plants are still used in traditional medicine to treat and prevent many diseases. These medicinal plants have chemical substances that also produce a definite physiological action on the human body.

Ethnobotany is defined as the study of the relationship between people and medicinal plants. The tribals have developed their traditional knowledge related to Siddha medicine, which has become a valuable and cultural ancestry of our nation.

Kurumba tribal families are depended on forest resources for food, firewood, herbal medicines, timber, fodder, etc. In that sense, Kurumba tribal people's knowledge about herbs and the way they use them is their specialty.

Background

Varma medicine is one of the special medicine systems of Siddha medicine. Varma medicine is also emerging as a medicine that shows the hallmarks of Siddha medicine.

Medicinal plants play a major role in the preparation of internal and external medicines in Varma Medicine. The Majority of Varma medicinal preparations are based on Medicinal Plants.

The Varma Literatures such as Kumbamuni Vathanithanam, Varma Marunthu Seimuraikal, Varma Marunthu Vaakada Nool, Varma Odivu Murivu Maruthuvam, etc. describes in detail about the treatment methods for injuries such as fractures, nerve injuries, joint dislocations, membrane tears, ligament injuries, etc.

Aim: The aim of the study is to document the herbal plants using for Varma treatment in Kannapadi village, Salem (DT), Tamil Nadu, India.

Objective

Primary Objective

To document the medicinal flora and traditional knowledge of Kurumba Tribe on indigenous plants used in varmam treatment. To compile data on traditional treatments against various ailments, including method of preparation, ethnobotanical uses of the plants, parts used and its application.

Secondary Objective

To compile data on the identification and classification of ethnobotanical plants.

Study Period: 4 months

Study Type: Qualitative

Study Design: Ethnographical

Quality Assurance: The whole procedure of the research was supervised by Guide and Supervisor of the Varma Maruthuvam Department.

Informed Consent: Participants were informed about the study in their own language. The study was conducted only with their consent.

METHODOLOGY

Study Area and People

A survey of ethnobotanical plants of investigation approximately lies between 87°0' to 89°0' longitude and 28°0' to 37° 0' latitude. The study area was Kannapadi Hills, Salem district, Tamil Nadu, India. The mean annual temperature in the study area ranges from 12°C to 35°C during Mar – Jun and averages between 10°C to 25°C during Oct - Jan. The area receives an average rainfall of 200 mm annually. Present investigation was conducted in villages located very close to Lokkur forest area. Each of the villages had few houses. Field trips were conducted Aug 2023 to Dec 2023 Kannapadi Hills, Salem district.

Data Collection

During the period of study (Sep 2023 - Dec 2023), frequent field surveys were conducted throughout the hills at different seasons so as to get more information on the utility of the plant species from the tribes. The information was gathered through questionnaires, personal interviews and discussions among them. The interview was conducted with the people who are having the sound knowledge on medicinal plants found in their area and used by their families and neighbours in their local language (Tamil). The questionnaire contains the details of the plants, parts used, medicinal uses and mode of preparation of remedies.

The medicinal plants were also collected during the field survey, identified, and photographed. The collected plant materials were assigned a field book number and their field characteristics. The plant species collected during surveys were arranged alphabetically by family name, vernacular name, scientific name and ethnomedicinal uses.



Figure 1



Figure 2



Figure 3

Data analysis

The Taxonomic identification of the plant specimens was done in the Department of Botany, Govt. Siddha Medical College, Palayamkottai, India. And Data analysis involved cross-referencing collected specimens with standard taxonomic references, such as 'Flora of the Presidency of Madras' and the 'Handbook of Medicinal Plants'.

RESULTS AND DISCUSSION

List of Medicinal Plants

A total of medicinal plants species belonging to 50 botanical families were identified as being used for Varma treatment in the study area. These plants are presented in alphabetical order. For each plant listed, we provide the scientific name, the family, the local name, the part used, the method of preparation and ethnobotanical uses (as shown in Table 1).

Table 1

Botanical name	Family	Habitat	Local name	Part used	Method of preparation	Ethnobotanical uses
<i>Abrus precatorius</i>	Fabaceae	C	Kunrimani	Leaf, Seed	Juice, Paste	Inflammation, Rheumatism
<i>Acacia nilotica</i>	Mimosaceae	T	Karuvela Maram	Bark, Leaf	Decoction	Pain, Swelling
<i>Acalypha indica</i>	Euphorbiaceae	S	Kuppaimeni	Whole plant	Paste, Juice	Germicide, Inflammation
<i>Acanthospermum hispidum</i>	Asteraceae	H	Kombumul	Leaf	Paste	Swelling, Bruise
<i>Aegle marmelos</i>	Rutaceae	T	Vilvam	Bark, Fruit, Leaf, Root	Decoction, Paste	Fever, Swelling, Pain
<i>Aeschynomene indica</i>	Fabaceae	H	Netti, Thakkai	Leaf	Juice	Wound Healing
<i>Ageratum conyzoides</i>	Asteraceae	H	Poompul	Leaf	Decoction, Paste	Wound, Arthritis
<i>Albizia amara</i>	Mimosaceae	T	Arappu	Leaf, Seed	Decoction, Juice	Disinfectant, Rheumatism
<i>Albizia lebbek</i>	Mimosaceae	T	Vagai	Leaf, Bark, Gum, Flower, Root	Decoction, Juice, Paste	Swelling, Bruise, Pain
<i>Alysicarpus monilifer</i>	Fabaceae	H	Chithra barani	Root	Powder	Rheumatism
<i>Andrographis echinoides</i>	Acanthaceae	H	Gopuram thangi	Leaf	Decoction, Paste	Wounds, Fever
<i>Anisomeles malabarica</i>	Lamiaceae	H	Aruvaa sadaisi	Whole plant	Decoction	Rheumatism
<i>Annona reticulata</i>	Annonaceae	S	Ram- sitapalam	Bark, Seed	Decoction	Disinfectant
<i>Argemone mexicana</i>	Papaveraceae	H	Pirama thandu	Leaf, Latex	Decoction, Juice	Rheumatism, Swelling
<i>Aristolochia indica</i>	Aristolochiaceae	S	Easwara mooli	Leaf	Paste, Juice	Swelling, Bruise
<i>Artabotrys hexapetalus</i>	Annonaceae	S	Mano ranjitam	Leaves, Flower, Fruit	Decoction	Fever
<i>Atalantia monophylla</i>	Rutaceae	T	Kattu elumichai	Bark, Fruit	Raw, Decoction, Juice	Rheumatism, Wound Healing, Swelling
<i>Azima tetracantha</i>	Salvadoraceae	S	Mutchankan	Leaf	Paste	Rheumatism, Inflammation
<i>Bacopa monnieri</i>	Scrophulariaceae	H	Pirammi	Whole plant	Juice, Paste	Inflammation, Pain
<i>Bauhinia purpurea</i>	Caesalpiniaceae	T	Mantharai	Bark, Leaf	Decoction	Rheumatism, Pain, Arthritis
<i>Blepharis maderaspatensis</i>	Acanthaceae	H	Nethira poondu	Leaf	Juice	Bone fracture
<i>Cadaba fruticosa</i>	Capparaceae	S	Vizhuthi	Leaf, Fruit	Powder, Paste	Fever, Swelling, Pain
<i>Calotropis gigantea</i>	Asclepiadaceae	S	Erukku	Leaf, Root	Juice	Rheumatism, Inflammation
<i>Canthium coromandelicum</i>	Rubiaceae	S	Kaarai	Bark, Leaf	Decoction, Paste	Fever, Pain
<i>Cardiospermum halicacabum</i>	Sapindaceae	C	Mudak kartan	Whole plant	Decoction	Pain
<i>Carissa carandas</i>	Apocynaceae	T	Kalaa	Fruit, Flower, Root	Decoction	Rheumatism
<i>Cassia absus</i>	Caesalpiniaceae	H	Kattu kollu	Seed	Paste	Swelling
<i>Cassia tora</i>	Caesalpiniaceae	S	Thakarai	Leaf	Juice	Healing Bone Fracture
<i>Centella asiatica</i>	Apiaceae	H	Vallarai	Whole plant	Paste, Powder	Swelling, Wound healing
<i>Chloroxylon swietenia</i>	Flindersiaceae	T	Purasam	Leaf	Powder	Rheumatism, Disinfectant
<i>Cissampelos pareira</i>	Menispermaceae	C	Malaitangi	Whole plant	Powder, Paste	Inflammation
<i>Cissus quadrangularis</i>	Vitaceae	C	Uruttu Pirandai	Leaf, Stem	Powder	Healing bone fracture, Swelling, Pain
<i>Cleistanthus collinus</i>	Euphorbiaceae	T	Odukkam	Leaf	Paste	Poisoning Plant, Wound Healing, Sprain
<i>Cleome gynandra</i>	Cleomaceae	H	Thaivelai	Root, Leaf	Paste, Decoction	Fever, Wound
<i>Commiphora caudata</i>	Burseraceae	T	Kiluvai	Bark, Leaf	Powder	Pain
<i>Corallocarpus epigaeus</i>	Cucurbitaceae	C	Mudavan aattu kizhangu	Tuber	Raw	Rheumatism
<i>Cordia dichotoma</i>	Boraginaceae	T	Naruvili	Fruit, Leaf	Juice, Paste	Rheumatism
<i>Cratogeomys magna</i>	Capparaceae	T	Maavi lingam	Leaf, Bark, Root	Decoction, Powder	Germicide, Rheumatism, Swelling
<i>Crotalaria verrucosa</i>	Fabaceae	S	Kilukiluppai	Whole Plant	Decoction, Paste	Rheumatism
<i>Cuscuta reflexa</i>	Cuscutaceae	C	Sadadhari	Whole Plant	Decoction	Pain
<i>Datura innoxia</i>	Solanaceae	S	Oomathai	Leaf, Root	Juice	Wound Healing, Fever, gout, Inflammation
<i>Delonix elata</i>	Caesalpiniaceae	T	Vaatha narayanan	Leaf, Stem, Root	Raw, Paste, Decoction	Rheumatism, stiffness in the joints
<i>Dendrocalamus strictus</i>	Poaceae	T	Ciru Moongil	Leaf, Root, Seed	Paste	Sprain, Rheumatism, Bone fracture

<i>Dichrostachys cinerea</i>	Fabaceae	T	Vidathari	Bark, Fruit, Root	Decoction	Rheumatism, Wound Healing, Boils, Fever
<i>Dregea volubilis</i>	Asclepiadaceae	C	Kodipaalai	Leaves	Paste	Rheumatism
<i>Ehretia microphylla</i>	Boraginaceae	S	Kuruvichi poondu	Whole Plant	Decoction	Pain
<i>Erythroxylum monogynum</i>	Erythroxylaceae	T	Cempulichan	Bark	Decoction	Fever
<i>Euphorbia hirta</i>	Euphorbiaceae	H	Ammaan pacharisi	Leaf, Latex	Juice, Paste	Disinfectant, Swelling, Wound
<i>Euphorbia neriifolia</i>	Euphorbiaceae	H	Ilaisevi kalli	Latex	Juice	Rheumatism
<i>Evolvulus nummularius</i>	Convolvulaceae	H	Vellai Vishnu kiranthi	Whole Plant	Paste, Powder	Wound, Fever
<i>Ficus racemosa</i>	Moraceae	T	Atthi	Leaf, Bark, Fruit, Latex, Root	Raw, Decoction, Juice	Inflammation, Pain, Fever
<i>Glycosmis pentaphylla</i>	Rutaceae	T	Konji Maram	Leaf,	Decoction, Powder	Bone Fracture, Rheumatism
<i>Gyrocarpus americanus</i>	Gyrocarpaceae	T	Tanukku	Bark	Decoction, Juice	Fever, wound Healing
<i>Heliotropium indicum</i>	Boraginaceae	H	Thel kodukku	Leaf	Juice	Bone Fracture, Wound Healing, Pain
<i>Hemidesmus indicus</i>	Asclepiadaceae	C	Nannari	Whole plant	Decoction	Rheumatism
<i>Hemionitis arifolia</i>	Pteridaceae	H	Ramar Panam	Leaf	Paste	Wound healing
<i>Indigofera linnaei</i>	Fabaceae	S	Seppu nerunji	Whole plant	Paste, Decoction	Wound, Rheumatism
<i>Indigofera tinctoria</i>	Fabaceae	S	Avuri	Leaf	Decoction	Inflammation, Disinfective
<i>Jatropha glandulifera</i>	Euphorbiaceae	S	Sigappu Aathalai	Root, Seed	Decoction	Rheumatism, Fever
<i>Justicia tranquebarensis</i>	Acanthaceae	S	Thavasur Murungai	Leaf	Paste	Contusion, Rheumatism, Swelling
<i>Lanea coromandelica</i>	Anacardiaceae	T	Othiya Maram	Bark, Stem, Gum	Juice, Paste	Gout, Sprains, Bruises
<i>Lantana camara</i>	Verbenaceae	S	Unnu	Leaf	Decoction	Wound Healing, Fever
<i>Limonia acidissima</i>	Rutaceae	T	Vilaa	Bark, Fruit, Root	Decoction, Powder	Swelling
<i>Melia dubia</i>	Meliaceae	T	Malaivembu	Leaf, Bark, Flower	Paste, Decoction	Rheumatism, Wound Healing
<i>Melochia corchorifolia</i>	Sterculiaceae	H	Pinnakku Keerai	Whole plant	Decoction	Swelling
<i>Melothria maderaspatana</i>	Cucurbitaceae	C	Maamooli	Leaf, Fruit, Root	Decoction	Fever, Inflammation, Rheumatism
<i>Michelia champaca</i>	Magnoliaceae	T	Chanbagam	Leaf, Flower, Root	Decoction, Paste	Rheumatism, Fever, Inflammation
<i>Millingtonia hortensis</i>	Bignoniaceae	T	Mara malligai	Leaf, Root	Decoction	Fever, Swelling
<i>Mimusops elengi</i>	Sapotaceae	T	Magila Maram	Bark, Flower, Fruit	Decoction, Juice	Disinfectant, Wound, Pain
<i>Nyctanthes arbor-tristis</i>	Nyctanthaceae	T	Pavalamalli	Leaf, Flower	Juice, Paste, Decoction	Inflammation, Pain
<i>Ocimum basilicum</i>	Lamiaceae	H	Thirunitru pachai	Whole plant	Juice, Powder	Swelling
<i>Pachygone ovata</i>	Menispermaceae	C	Kattu Kodi	Leaf	Paste	Inflammation
<i>Pavetta indica</i>	Rubiaceae	S	Paavattai	Leaf	Decoction, Paste, Raw	Rheumatism, Fever
<i>Pavonia odorata</i>	Malvaceae	H	Peraamutti	Leaf, Root, Stem	Decoction	Inflammatory arthritis, Fever
<i>Pedaliium murex</i>	Pedaliaceae	H	Yanai nerungi	Seed, Fruit	Juice	Pain
<i>Pergularia daemia</i>	Asclepiadaceae	C	Veliparuthi	Leaf	Juice	Fever
<i>Phaseolus trilobatus</i>	Fabaceae	H	Naripayiru	Leaf, Root	Decoction, Paste	Fever, Inflammation
<i>Phoenix sylvestris</i>	Arecaceae	T	citrisam	Fruit, Leaf, Root	Decoction	Pain, Fever
<i>Phyla nodiflora</i>	Verbenaceae	H	Poduthalai	Whole plant	Paste	Swelling
<i>Phyllanthus maderaspatensis</i>	Euphorbiaceae	H	Melkaainelli	Whole Plant	Paste	Inflammation
<i>Pongamia pinnata</i>	Fabaceae	T	Pongan	Leaf, Bark, Fruit, Flower, Root	Decoction, Powder, Paste	Inflammation, Germicide
<i>Pterocarpus marsupium</i>	Fabaceae	T	Uthira vengai	Leaf, Bark, Gum	Decoction, Paste	Swelling, Pain, Fever
<i>Rauwolfia tetraphylla</i>	Apocynaceae	S	Kattu Pambukala	Leaf, Root, Seed	Decoction, Juice, Paste, Powder	Wound
<i>Rhinacanthus nasutus</i>	Acanthaceae	S	Naagamalli	Whole Plant	Decoction	Fever, Disinfectant
<i>Santalum album</i>	Santalaceae	T	Chandanam	Leaf, Bark	Decoction, Paste	Germicide

<i>Sida acuta</i>	Malvaceae	S	Arvalmanai poondu	Leaf, Flower	Decoction	Rheumatism, Wound Healing
<i>Stachytarpheta jamaicensis</i>	verbenaceae	S	Seemai Naiyurivi	Whole plant	Decoction, Paste	Disinfectant, Wound, Pain
<i>Streblus asper</i>	Moraceae	T	Kutti palaa	Leaf, Latex	Juice, Powder	Fever, Wound Healing
<i>Strychnos nux-vomica</i>	Strychnaceae	T	Etti	Leaf, Root	Decoction, Paste	Fever, Swelling
<i>Syzygium cumini</i>	Myrtaceae	T	Naaval	Bark, Leaf, Root	Decoction, Powder	Swelling
<i>Tephrosia purpurea</i>	Fabaceae	H	kolinji	Root	Decoction, Paste	Wound Healing, Rheumatism,
<i>Triumfetta rhomboidea</i>	Tiliaceae	H	Aadaiyotti	Leaf, Root	Decoction, Paste	Swelling, Pain,
<i>Tylophora indica</i>	Asclepiadaceae	C	Nanja ruppan	Leaf, Root	Decoction, Powder	Gout, Rheumatism
<i>Vitex negundo</i>	Verbenaceae	S	Nochi	Leaf, Root, Bark	Paste	Disinfectant, Rheumatism
<i>Wrightia tinctoria</i>	Apocynaceae	T	Vetpalai	Leaf, Bark, Seed, Latex	Decoction, Juice, Powder	Inflammation, Germicide
<i>Ziziphus oenoplia</i>	Rhamnaceae	S	Soorai	Fruit, Leaf	Decoction, Powder	Pain, Disinfectant

Habitat: C-Climber, H-Herb, S-Shrub, T-Tree

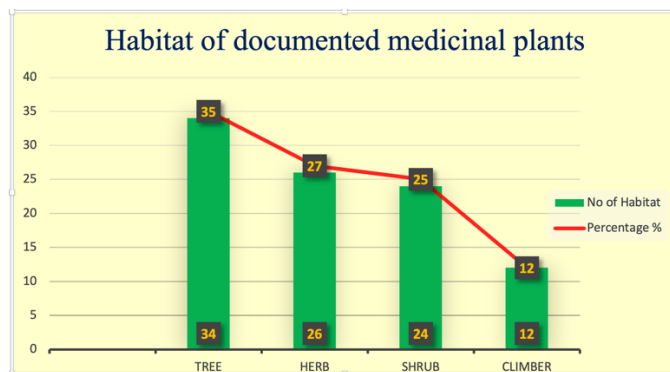


Figure 4

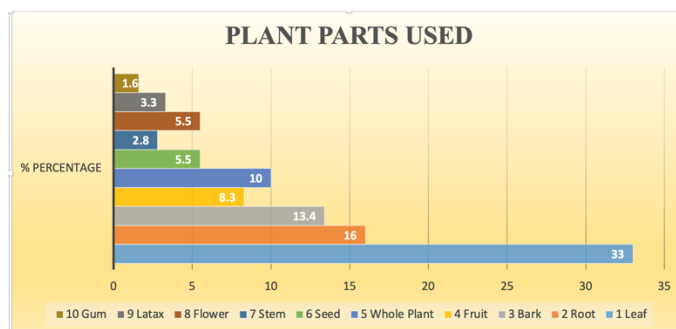


Figure 5

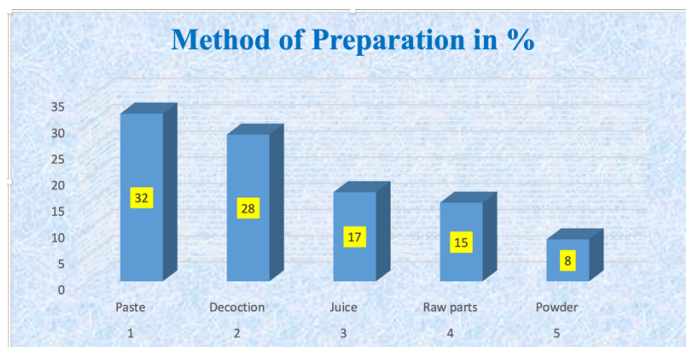


Figure 6

List of Plant Families

Overall, medicinal plants were collected during the field survey, out of which species were of ethnobotanical value. These species belonged to genera and 50 families. Among all families Fabaceae (10 genera and 11 species), Euphorbiaceae (5 genera and 6 species), Asclepiadaceae (5 genera and 5 species), Acanthaceae, Rutaceae, Verbenaceae (each 4 genera and 4 species), Caesalpiniaceae (3 genera and 4 species) are the more dominant families followed by Apocynaceae and Boraginaceae (each 3 genera and 3 species), Mimosaceae (2 genera and 3 species) and Rubiaceae (2 genera and 2 species), Menispermaceae, Convolvulaceae, Cucurbitaceae, Sapotaceae, Rhamnaceae (1 genera and 1 species) and 15 families were represented by single genera and single species.

Life Form and Parts Used

Habitat of Documented Medicinal Plants: Trees (35) were the primary source of medicine followed by shrubs (27%), herbs (21.5%) and climbers (9.5%). The frequent use of tree species among the kurumba communities is due to the abundance of these species in their environment. Kannapadi Hills harbors more trees compared to shrubs, herbs, and climbers (Figure 4).

The most commonly used plant part was leaves (60 species), Gum (3 species) whole plants (of 18 species), roots (29 species), bark (24 species), latex (6 species), Stem (5 species) and Seed & Flower (each 9 species) Figure (5).. In most of the plants more than leaf part was used as medicine. The reason why leaves were used mostly is that they are collected very easily than underground parts, flowers, fruits, etc.

Method of preparation and mode of administration of plants

The preparation and utilization of plant parts were grouped into five categories Figure 6. Of these, most used method preparation was paste (32%) followed by decoction (28%), juice (17%), raw parts (15%) and powder (8%).

Preparation of paste for the treatment of ailments is a common practice among the Kurumba communities. The paste was prepared by grinding the fresh or dried plant parts with oil or water. The powder was prepared by grinding of shade dried plant parts. The decoction was obtained by boiling the plant parts in water until the volume of the water reduced to minimum or required amount.

Internal uses (65%) were predominating over external or topical uses (35%) for topical use, the most important methods used were direct application of paste or medicated oil and mostly dealt with diseases like rheumatism, pain and wound.

CONCLUSION

This survey documented the medicinal plants used by the Kurumba tribes of Kannapadi Hills, Salem district, Tamil Nadu, for Varma-related ailments. The findings underscore the richness of traditional knowledge and its relevance in addressing conditions like fractures, nerve injuries, and joint dislocations. Conservation strategies are imperative to protect this biodiversity and the genetic resources of these plants. Promoting sustainable practices, cultivating medicinal plants, and mitigating activities like grazing and deforestation are vital steps forward.

Kurumba tribes' methods of preparation and application are simple, effective, and free from side effects, offering significant value for local healthcare practices. Future efforts should focus on preserving this invaluable traditional knowledge and

conducting pharmacological studies to validate the therapeutic claims.

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