



## ETHNOBOTANICAL INFORMATION ON PLANTS USED FOR ARTHRITIS BY THE TRIBES OF PARVATHIPURAM MANYAM DISTRICT, ANDHRA PRADESH, INDIA.

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An exploration of the Ethnobotanical knowledge of Parvathipuram Manyam district, a part of the Eastern Ghats which is home to rich flora and tribal habitats teeming with unique tribal cultures, identified 48 medicinal plants for arthritis and its similar ailments. They belong to 44 genera and 32 families. The details collected from the tribal medicinal gurus, tribal older persons and priests identified through standard flora and their vernacular names, parts used and method of usage are expressed in this paper. These plants were used either externally or internally. Although the results of this findings are inspiring, further experimentation is needed on the active phytochemicals involved before they can be put into practice.

**Keywords:** Andhra Pradesh, Arthritis, Functional food plants, Medicinal plants, Tribes of Parvathipuram Manyam.

### Introduction

Arthritis and its related diseases are currently a major issue for the Indian general population, which is shifting from a largely rural background to an urbanized one<sup>1</sup>. Arthritis is a discomfort of the joints. Approximately 100 arthritis-like diseases have been recognized<sup>2</sup>, among which osteoarthritis is most ubiquitous in India<sup>3</sup>. As a result, more than 15 million adults are affected by this illness every year. Universally, India occupies about 22% to 39% share. In common, women are twofold extra sensitive to arthritis than men. The reasons for early beginning in females contain obesity and malnutrition. As many as 90% of Indian women are insufficient in vitamin-D, which is critical in managing bone metabolism. Its absence in the body directly or indirectly influences the knee<sup>4</sup>. Near 14% of the Indian population tries to find a doctor's help every year for this joint ailment. While these numbers might have pull up multifarious in the over half a decade,

widespread presence of arthritis is, as it is, elevated than diseases like diabetes, AIDS and cancer<sup>5</sup>. Commonly used drugs for Arthritis consist of contemporary non-steroidal anti-inflammatory drugs (NSAIDs), capsaicin, and Cymbalta. Corticosteroids could be inoculate straightly into the joint<sup>6</sup>. Those drugs can have extreme side effects (and may not address the actual trouble)<sup>7</sup>, so instead of taking allopathic medicines, patients turned to using medicinal plants<sup>8</sup>. In the existing research data was collected from tribal medicinal practitioners, elderly peoples, and local priests in the remote areas of Parvathipuram Manyam district<sup>9</sup>. Plant treatments are being used for rehabilitate Arthritis and associated problems fortunately without any side effects<sup>10</sup>.

### Material and Methods

Parvathipuram Manyam district was established on 4<sup>th</sup> April 2022, this locality is a segment of the Northern coastal plains of Andhra Pradesh state lies between 170-

15<sup>1</sup> and 190-15<sup>1</sup> of Northern Latitude and 830-0<sup>1</sup> to 830-45<sup>1</sup>, of the Eastern Longitude, with 3,659 square kilometers. This region is surrounded by North of Koraput district of Odisha state and South part of Vizianagaram district, Srikakulam district, west of Alluri Sitharama Raju district and Rayagada district of Odisha state. The total forest region of this district is 1,02,784 hectares which is 38.7% of the entire geographical area.

The word “manyam” fundamentally indicates inhabitation of Scheduled Tribes in this district. The ethnic population mainly predominant in Seethampeta, Saluru, Pachipenta, Makkuva, Komarada, Kurupam, G.L Puram, Parvathipuram, and a few segments in Jiyammavalasa Mandal. The familiar tribes in Parvathipuram Manyam district are Savara, Jatapu, Gadaba, Konda Kapu, Muka Dora and Konda Dora,

They have a deep belief in their native folklore medicine for remedies and they rely mostly on their own herbal cure. Although the literature on the uses of varied medicinal plants by the different tribes of Eastern Ghats of India have been documented<sup>11</sup>, exclusive studies on the arthritis and related problems in Parvathipuram Manyam district is scanty necessitating the present study.

The current study is the result of a series of rigorous field studies conducted over two years (2021-2023) in 10 illustrative interior tribal mandals with good forest cover. The details were collected from the tribal medicinal gurus,

tribal older persons, and priests through an interview. The procedure of investigation and mode of approach was adopted from the traditional work of Jain<sup>12</sup>. Each therapeutic implementation was scrutinized with 4 or 5 informants. Plant specimens were identified by referring to standard local flora<sup>13</sup>.

### Results and Discussion

The species enumerated here are organized alphabetically in accord with their botanical name, local name followed by family, and method of consumption in Table 1. The present exploration unfolds folkloric uses of 46 plants belonging to 44 genera in 32 families. Distinct plant parts such as leaves stem, seeds, tuber, flower, fruit and latex of aerial parts, in the form of many conventional preparations are used to help severe arthritis problems as expressed by conventional therapists and Tribal gurus.

Among these 46 plants leaves of 16 plant species, stem and seeds of 7 species each, roots of 6 species, latex of aerial parts and whole plant 3 species each, tuber of 2 species, floral parts and fruit 1 species each used for the treatment of arthritis and related problems. Regarding the method of usage 63% are taken externally, 24% orally and 13% as functional food. About 11 herbs are used to control pain, 7 species to reduce inflammation another 7 to prevent rheumatic fever, and the rest to improve cartilage, synovial fluid. The dosage of the drug depends on the physical condition of the person to be taken, age and severity of the disease.

**Table 1.:** Plants used for Arthritis

| S. N. | Name of the Plant                                  | Vernacular Name | Family        | Method of usage  |
|-------|--|-----------------|---------------|--|
| 1     | <i>Adhatoda vasika</i> Nees                        | Addasaram       | Acanthaceae   | Leaf extraction mixed with dried rhizome powder of <i>Alpinia galanga</i> taken orally for rheumatic fever and Swelling. |
| 2     | <i>Alangium salvifolium</i> (Linn. f.) Wang.       | Ooduka          | Alangiaceae   | The leaves are applied as a Poultice to cure Swelling of the Knee.   |
| 3     | <i>Alternanthera sessilis</i> (Linn.) R.Br. ex DC. | Bodhikura       | Amaranthaceae | Whole plant curry is used to improve gluten production.  |
| 4     | <i>Aschynomene indica</i> Linn.                    | Bandha Jeelugu  | Fabaceae      | The leaf is pasted with sesame oil and is used for Joint pains.  |
| 5     | <i>Atlantia monophylla</i> (Roxb.) A. DC.          | Matramullu      | Rutaceae      | Crushed seed extraction is applied for joint pains.  |

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| 6  | <i>Atylosia scaraboides</i> (Linn.) Benth.               | Kondaulava    | Fabaceae        | Fresh leaf paste is applied to joints for pain relief.   |
| 7  | <i>Bauhenia puprea</i> Linn.                             | Bodhantham    | Fabaceae        | Tender leaves mixed with Grains of Horse gram are taken as curry to reduce Arthritis.  |
| 8  | <i>Bridelia retusa</i> (Linn.) Spreng                    | Korramanu     | Euphorbiaceae   | Stem bark powder mixed with Jaggery is taken orally for Rheumatic pain   |
| 9  | <i>Buchaniana lanzon</i> Spreng.                         | Jarumamidi    | Anacardiaceae   | Stem bark powder mixed with same quantity of mustard oil is applied to relieve Knee pain                                     |
| 10 | <i>Calophyllum inophyllum</i> Linn.                      | Ponna         | Clusiaceae      | Seed oil is used in treating rheumatism.   |
| 11 | <i>Canavalia virosa</i> (Roxb.) Wight & Arn.             | Thambakai     | Fabaceae        | Roots, along with the roots of <i>Abrus precatorius</i> crushed in to a paste and applied externally.                        |
| 12 | <i>Canthium parviflorum</i> Lam.                         | Balusu        | Rubiaceae       | Stem bark extract with Jeera powder is taken orally for rheumatoid arthritis   |
| 13 | <i>Capparis sepiaria</i> Linn.                           | Nallauppi     | Capparaceae     | Tuber bark is pasted with water and can be used orally for rheumatoid arthritis.   |
| 14 | <i>Cardiospermum helicacabum</i> Linn.                   | Buddakakara   | Sapindaceae     | The entire plant paste is applied for rheumatoid arthritis.  |
| 15 | <i>Cassia auriculata</i> Linn.                           | Nelathangedu  | Caesalpiniaceae | Stem bark and dried fruit of Myrobalan are made into powder and taken orally with water to cure Rheumatic fever.             |
| 16 | <i>Celastrus paniculatus</i> Willd.                      | Erikijada     | Celastraceae    | Seed oil is used for rheumatism  |
| 17 | <i>Cissus quadrangularis</i> Linn.                       | Nalleruteega  | Vitaceae        | Callous shoots, crushed with cumin and garlic cloves, are made into chutney for daily meals to improve cartilage.            |
| 18 | <i>Clerodendrum cerratum</i> (Linn.) Moon                | Gantubarangi  | Verbinaceae     | Leaf juice and <i>Calotropis gygantia</i> roots are boiled with seam oil, cooled, and applied to the affected area.          |
| 19 | <i>Cocculus hirsutus</i> (Linn.) Diels                   | Dustaputheega | Menispermaceae  | Root paste applied on Joints to relieve pain.  |
| 20 | <i>Curculigo orchioides</i> Gaertn.                      | Nelathadi     | Hypooxalidaceae | The root powder mixed with Aswagandha powder can be administrated orally with warm milk for Strengthening knees.             |
| 21 | <i>Digeria muricata</i> (Linn.) Mart.                    | Chenchalakura | Amaranthaceae   | The plant is used as leafy vegetable to improve the regeneration of Cartilage.   |
| 22 | <i>Eleusine coracana</i> (Linn.) Gaertn.                 | Chollu        | Poaceae         | Nutrient syrup prepared from grains called "Ambali" with garlic cloves can be taken daily as breakfast to control Arthritis. |
| 23 | <i>Elytraria acculis</i> (Linn.f.) Lindau.               | Chappadumpa   | Acanthaceae     | Leaves are fried with mustard oil and bandaged above the knee to reduce swelling.  |
| 24 | <i>Enicostema axillare</i> (Lam.) A.                     | Gulivi        | Gentianaceae    | Whole plant extraction with turmeric powder is taken orally once a day for Arthritis fever.                                  |
| 25 | <i>Entada pursaetha</i> DC.                              | Giliteega     | Fabaceae        | Paste made by mixing the seeds with water is applied on the joints to relieve pain.  |
| 26 | <i>Euphorbia tithymaloides</i> Linn.                     | Rabbaruchettu | Euphorbiaceae   | Latex is applied externally on Knee to reduce Swelling.  |
| 27 | <i>Ficus hispida</i> Linn.f                              | Boddachettu   | Moraceae        | The stem latex is put on the affected area outwardly.  |
| 28 | <i>Glycosmiscochin chinensis</i> (Lour.) Plerre ex Engl. | Chittigolimi  | Rutaceae        | Fruits are eaten to improve Cartilage in early Arthritis   |
| 29 | <i>Heliotropium indicum</i> Linn.                        | Thelukunchi   | Boraginaceae    | The fresh Inflorescence paste is applied superficially for Knee pains  |
| 30 | <i>Hemidesmus indicus</i> (Linn.) R. Br.                 | Sukandhi      | Periplocaceae   | A small quantity of root decoction is administrated orally to cure rheumatic fever.  |

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| 31 | <i>Ipomea cornea</i> Subsp. <i>Fistulosa</i> (Jacq) (Mart.ex Choisy) D.F. Austin | Labbarumokka   | Convolvulaceae | Leaf paste and Latex are used superficially on the influenced part.   |
| 32 | <i>Ipomea nill</i> (Linn.) Roth  | Thudibaddu     | Convolvulaceae | Leaves dipped into mustard oil and mildly heated, these heated leaves are tied upon the knee for Curing Osteoarthritis.   |
| 33 | <i>Jatropha curcas</i> Linn.   | Kondanepalum   | Euphorbiaceae  | Plant latex heated with same quantity of Camphor can be applied externally for rheumatoid arthritis.  |
| 34 | <i>Jatropha glandulifera</i> Roxb.   | Vathanarayan   | Euphorbiaceae  | Leaves are mildly heated with castor oil and applied as a poultice for Osteoarthritis.  |
| 35 | <i>Litsea glutinosa</i> (Lour.) C. B. Rob.                                       | Naruvamaanu    | Lauraceae      | Mildly heated oil extracted from the seeds is used for reducing knee swelling.  |
| 36 | <i>Luffa aegyptica</i> Mill.   | Donkabeera     | Cucurbitaceae  | A paste made from the tender stem is applied to the wrist and ankle to relieve joint pain.  |
| 37 | <i>Madhuca longifolia</i> Gmel.  | Ippa           | Sapotaceae     | The oil extracted from the seeds is used for treating Joint pains.  |
| 38 | <i>Merremia emarginata</i> (Burm. f.) Hall. f.                                   | Elukachevi     | Convolvulaceae | The entire plant is mildly heated, and suggested to be tied around the knee to reduce swelling.   |
| 39 | <i>Mimosa pudica</i> Linn.   | Sigalagutti    | Mimosaceae     | A paste made from the roots, mixed with latex of <i>Hemidesmus nindicus</i> , is applied to the affected area.  |
| 40 | <i>Osimum americanaum</i> Linn.  | Bhoothulasi    | Lamiaceae      | Leaves of this plant, along with leaves of <i>Coleus ambonicus</i> , mixed with boiled water, are suggested for bathing to relieve rheumatoid pain.   |
| 41 | <i>Pueraria tuberosa</i> (Willd.) DC.  | Dharigummadi   | Fabaceae       | A paste made from the tuber is applied for Joint pains.   |
| 42 | <i>Strychnosnux-vomica</i> Linn.   | Musidika       | Logoniaceae    | Fruit pulp mixed with goat milk is recommended for daily consumption to reduce the risk of Osteoarthritis.  |
| 43 | <i>Tinospora cordifolia</i> (Willd.) Miers ex Hook. f. & Thoms.                  | Thippateega    | Menispermaceae | A decoction made by mixing the secondary stem of this plant with the entire plant of <i>Andrographis paniculata</i> is advised to be taken daily (10 ml.) on an empty stomach to control Rheumatic fever. |
| 44 | <i>Urena lobata</i> Linn.  | Banka mokka    | Malvaceae      | Sesame oil is applied to the leaves of this plant, which are then mildly heated and tied on the Knee to reduce swelling.  |
| 45 | <i>Vanda tassellata</i> (Roxb.) Hook. ex G. Don.                                 | Vega badhinika | Orchidacea     | Velamen root paste is applied on Joints to prevent pain.  |
| 46 | <i>Woodfordia fruticosa</i> (Linn.) Kurz.  | Jeguruchettu   | Lythraceae     | Leaves are ground in to a paste, mildly heated, placed in a cloth, and apply gently on the knees to reduce Swelling.  |

### Conclusion

The reason why the tribal peoples are not prone to arthritis and its related disorders despite the strenuous physical work and joint-weary walking is their absorption of herbal medicines. Documentation is not taking place unless they are passing this knowledge on from generation to generation. The foremost objective of the current research is to find a solution for

arthritis by bringing their knowledge into light.

According to the Ethnobotanical information collected in Parvathipuram Manyam district, 46 plants belonging to 44 genera are used for the prevention of arthritis. Although most of these are applied externally on the body, some are absorbed internally as part of food and medicine. Any plant can be used

medicinally because of the secondary chemical content in its internal parts. It is hoped that future research on the phytochemicals of these plants related to arthritis will lead to more scientific findings.

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