# Ethnomedicinal Investigation of Medicinal Plants Used By the Tribes of Pedabayalu Mandalam, Visakhapatnam District, Andhra Pradesh, India.

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**Abstract:**
*The present study documents the traditional knowledge of medicinal plants that are in use in Pedabayalu Mandalam, Visakhapatnam District, Andhra Pradesh, India. Ethnomedicinal uses of 80 plant species along with botanical name, vernacular name, family, plant parts, life forms and disease are presented. They belong to 70 genera and 21 families. These plants used to cure 30 types of ailments. Most remedies were taken orally, accounting for 60% of medicinal use. Most of the remedies were reported to have been from trees and herb species. High number of medicinal plant species available for the treatment of dysentery, skin disease and fever.*

***KeyWords:****Ethnomedicinal plants, Investigation, Tribal people, Pedabayalu Mandalam, Visakhapatnam District,*

## I. INTRODUCTION

Ethnobotany came into being when the earliest man observed the animals mostly the apes and monkeys eating certain plant often to satisfy his hunger and at other times to heal his wound and to get rid from pains and sufferings. The observations on apes and monkeys (which were very close to human beings in morphology and also in anatomy and physiology) eating certain plant parts-roots, stems, leaves, flowers, fruits and seeds and the beneficial effects on their body gave a food for thought to these early men and it started the genesis of basic thoughts in human brain. An analysis of such observations provoked them to use plants for maintenance of life and alleviation of diseases. In this way, it helped them in formulating the basic concepts of sciences of life which were evaluated rationally, later on over a period of time. Thus, on the basis of the uses of plants first by animals and later by human beings the concept of ethno zoology and Ethnobotany emerged which merged to give birth to ethno biology.

In India it was Dr. S.K. Jain (1986) from NBRI, Lucknow, affectionately known as 'Father of Indian Ethnobotany' who made pioneering investigations. Ethnobotany has assumed new significance and a new dimension today when the modern civilization realized that all those plant products they are using today either as a food or as a medicine are the gift of those early men who used those plants to satisfy their hunger and heal their wounds and to know and evaluate the utility of those plants often experimented on their own body, sometimes also accidentally suffering due to their use, such as in case of some poisonous plants.

## II. STUDY AREA

Generally the Pedabayalu Mandalam of Visakhapatnam district is with full of tribal population (Fig.1). The tribal communities live in forests, hilly tracts and naturally isolated areas from the civilized urban society. That's why in nature they developed their cultures of their own. They depend up on the nature for their food, shelter, and livelihood, thus the vegetation has much influence on the tribal life. The total population of scheduled tribes in India is 683.81 lakhs and constitutes 8.08% of the total population as per 1991 census report. The tribal population of Andhra Pradesh is 41.99 lakhs which is 6.3% of the total population. 13 tribal groups who inhabit this Mandalam are, Bagata, Gadaba, Kammara, Konda Doras, Khondu, Kotia, Kulia, Malis, Manne Dora, Mukha Dora, Porja, Reddi Doras, Nooka Dora and Valmiki.

In Pedabayalu Mandalam the tribals Konda Dora, Kotias, Kondus are lived in group of houses called huts. Generally, the houses are constructed with Bamboo ***(Bambusa arundinancea),*** Palmyra culms and other timber yielding plants. Palmya culms are used for thatching the roofs of the houses. The walls are constructed with mud mixed with ash of burn grass and are smeared with cow dung.

The tribal communities which live in forest area collect minor forest produce or non timber forest produce like tamarind, amla, adda leaves, bamboo, beedi leaves, roots, tubers, wild fruits and honey. They generally sell them in the weekly markets or Shandys known as "Santha". The main occupation of tribal people in Pedabayalu Mandalam is agriculture. Podu cultivation is one of the old methods of cultivation particularly in mountain tracts and hill slopes.

## III. MATERIAL AND METHODS:

The approaches and methodologies for ethnobotanical work, suggested by Jones (1941), Schultes (1960, 1962), Croom (1983), Jain (1987, 1989), Bellany (1993), Chadwick and Marsh (1994) and Cotton (1996) were followed. Emphasis was given mainly on intensive field work in selected tribal habitations. The focus of the present study is to record the ethnobotanical knowledge with special reference to medicinal plants possessed by the tribal people. They represent the pockets of human gene pool and have distinct habitats and habits with ample knowledge on the medicinal properties of their surrounding plants. Plants employed in materiel culture and plants associated with folk songs, folk tales, worship, mythology, taboos, magico-religious beliefs, ceremonies etc. were studied in addition to vernacular names. Plant identifications were made with the help of Flora of the Presidency of Madras (Gamble, 1915-1935) using the field observations. The identifications were later confirmed with the help of Flora of Visakhapatnam District (Rao and Kumari, 2002) and by comparison with authentic specimens in the Andhra University Herbarium.

**Table. 1. Ethnomedicinal plants used by tribal people of Pedabayalu Mandalam.**

| F | G/sp. | Botanical name | Local name | Habit | Life form | Plant parts | Disease |
|---|---|---|---|---|---|---|---|
| 1 | | **ANNONACEAE** | | | | | |
| | 1 | ***Annona squamosa***. Linn. | Sitaphalam | Tree | Ph-meso | Seeds | wounds |
| | 2 | ***Polyalthia longifolia*** Benth. | Naramamidi | Tree | Ph-mega | Bark | Rheumatism |
| 2 | | **MENISPERMACEAE** | | | | | |
| | 3 | ***Cissampelos pareira*** Linn | Bankatheega | Climber | Ph-micro | Root | Stomachic |
| | 4 | ***Cocculus hirsutus*** (Linn.) Diels | Dussarateega | Climber | Ph-nano | Root | Eczema |
| | 5 | ***Tinospora cordifolia*** Miers | Tippatheega | Climber | Ph-micro | Stem | Jaundice |
| 3 | | **NYMPHAECEAE** | | | | | |
| | 6 | ***Nelumbo nucifera*** *Gaertn.* | Tamara | Herb | C-hydro | Rhizome | Dysentery |
| | 7 | ***Nymphaea pubescens*** Willd. | Kaluva | Herb | C-hydro | Root | Dysentery |
| 4 | | **BRASSICACEAE** | | | | | |
| | 8 | ***Brassica juncea*** (Linn.) Czernajew | Telle avalu | Herb | Th | Seed | Diarrhoea |
| | 9 | ***Raphanus sativus*** Linn. | Mullangi | Herb | C-geo | Root | Urinary trouble |
| 5 | | **CAPPARACEAE** | | | | | |
| | 10 | ***Cadaba fruticosa*** (Linn.) Druce | Chedonda | Shrub | Ph-micro | Leaf | Eczema |
| | 11 | ***Capparis sepiaria*** Linn. | Nallauppi | Straggler | Ph-micro | Plant | Skin trouble |
| | 12 | ***Cleome gynandra*** Linn. | Vominta | Herb | Th | Leaf | Headache |
| | 13 | ***Cleome viscosa*** Linn. | Kukkavominta | Herb | Th | Seed | Pain |
| | 14 | ***Maerua oblongifolia*** (Forsk.)A.Rich. | Dholo Katkiyo | Shrub | Ph-micro | Root | Headache |
| 6 | | **MALVACEAE** | | | | | |
| | 15 | ***Abelmoschus esculentus*** Moench. | Benda | Shrub | Ph-micro | Leaf | Dysentery |
| | 16 | ***Abutilon indicum*** (Linn.) Sw. | Thuthurubenda | Shrub | Ph-micro | Leaf | Piles |
| | 17 | ***Hibiscus rosa-sinensis*** Linn. | Mandhara | Shrub | Ph-nano | Flower | Mennorrhagia |
| | 18 | ***Sida cordifolia*** Linn. | Bala | Herb | Th | Root | Leucorrhoea |
| | 19 | ***Thespesia populnea*** Corr. | Gangaravi | Tree | Ph-meso | Root | Diabetes |
| 7 | | **BOMBACACEAE** | | | | | |
| | 20 | ***Adansonia digitata*** Linn. | Bandaru | Tree | Ph-mega | Leaves | Dysentery |
| | 21 | ***Bombax ceiba*** Linn. | Buruga | Tree | Ph-mega | Root | Diabetes |
| | 22 | ***Cieba Pentandra*** *(Linn.)Gaertn.* | Tellaburuga | Tree | Ph-mega | Leaf | Boils |
| 8 | | **TILIACEAE** | | | | | |
| | 23 | ***Corchorus capsularis*** Linn. | Tellanara | Herb | Th | Seed | Stomachic |
| | 24 | ***Triumfetta rhomboidea*** Jacq. | Chiruchitrica | Herb | Ph-nano | Root | Ulcers |
| 9 | | **ZYGOPHYLLACEAE** | | | | | |
| | 25 | ***Tribulus terrestris*** Linn. | Palleru | Herb | Th | Root | Diabetes |
| 10 | | **RUTACEAE** | | | | | |
| | 26 | ***Aegle marmelos*** (Linn). Corr. | Maredu | Tree | Ph-meso | Bark | Dysentery |
| | 27 | ***Citrus limon*** (Linn). Burm. | Nimmakaya | Shrub | Ph-meso | Fruit | Stomachic |
| | 28 | ***Citrus medica*** Linn | Madeepalamu | Shrub | Ph-meso | Fruit | Dysentery |
| | 29 | ***Murraya koenigii*** Spreng. | Karivepaku | Tree | Ph-meso | Leaf | Vomiting |
| 11 | | **MELIACEAE** | | | | | |
| | 30 | ***Azadirachta indica*** A. Juss. | Vepa | Tree | Ph-mega | Bark | Skin trouble |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 31 | ***Melia azedarach*** Linn. | Turakavepa | Tree | Ph-mega | Leaf | Fever |
| | 32 | ***Soymida febrifuga*** A. Juss. | Chavachettu | Tree | Ph-mega | Bark | Fever |
| 12 | | **RHAMNACEAE** | | | | | |
| | 33 | ***Zizyphus mauritiana*** Lamk | Rgichettu | Tree | Ph-meso | Seed | Diarrhoea |
| | 34 | ***Zizyphus nummularia*** (Burm.f.)Wt. & Arn. | Nelaregu | Shrub | Ph-micro | Leaf | Scabies |
| | 35 | ***Zizyphus xylopyra*** Willd. | Gotti | Tree | Ph-meso | Bark | Asthma |
| 13 | | **FABACEAE** | | | | | |
| | 36 | ***Abrus precatorius*** Linn. | Guruvinda | Climber | Ph-micro | Seed | Paralysis |
| | 37 | ***Butea monosperma*** (Lam.) Kuntze | Moduga | Tree | Ph-mega | Bark | Piles |
| | 38 | ***Clitoria ternatea*** Linn. | Sankupulu | Herb | Th | Root | Eye disease |
| | 39 | ***Dalbergia sissoo*** Roxb. | Sissoo | Tree | Ph-mega | Bark | Urinary infection |
| | 40 | ***Derris indica*** (Lam.) Bennet | Nalla theega | Tree | Ph-mega | Root | Snake bite |
| | 41 | ***Mucuna pruriens*** Bak | Durada Gondi | Climber | Th | Seed | Eczema |
| | 42 | ***Petrocarpus marsupium*** Prain. | Yegisa | Tree | Ph-mega | Bark | Cough |
| | 43 | ***Sesbania grandiflora*** Pers. | Avisachettu | Tree | Ph-mega | Bark | Diarrhoea |
| | 44 | ***Vigna aconitifolia*** (Jacq.) Marechal | Pillipesara | Climber | Th | Seed | Fever |
| | 45 | ***Teramnus labialis*** Spr. | Masaparni | Climber | Th | Root | Fever |
| 14 | | **CAESALPINIACEAE** | | | | | |
| | 46 | ***Bauhina racemosa*** Lam. | Arichettu | Tree | Ph-mega | Bark | Dysentery |
| | 47 | ***Caesalpinia bonduc*** (Linn.) Roxb. | Gachapodha | Shrub | Ph-micro | Seed | Vomiting |
| | 48 | ***Caesalpinia pulcherrima*** (Linn.) Swartz. | Phydi thangedu | Shrub | Ph-micro | Flower | Fever |
| | 49 | ***Cassia absus*** Linn. | Chanupalavittu | Shrub | Th | Leaf | Cough |
| | 50 | ***Cassia auriculata*** Linn. | Thangedu | Shrub | Ph-micro | Root | Skin disease |
| | 51 | ***Cassia fistula*** Linn. | Rela | Tree | Ph-mega | Bark | Skin disease |
| | 52 | ***Cassia occidentalis*** Linn. | Kasinta | Shrub | Ph-micro | Leaf | Eczema |
| | 53 | ***Delonix elata*** (Linn.) Gamble | Chittikesaram | Tree | Ph-mega | Leaf | Rheumatism |
| 15 | | **MIMOSACEAE** | | | | | |
| | 54 | ***Acacia farnesiana*** (Linn.) Willd | Murikithuma | Tree | Ph-meso | Stem | Cough |
| | 55 | ***Acacia leucophloea*** (Roxb.) Willd | Tella thumma | Tree | Ph-meso | Stem | Arthritis |
| | 56 | ***Acacia nilotica*** (Linn.) Del. | Nalla thumma | Tree | Ph-mega | Bark | Dysentery |
| | 57 | ***Dichrostachys cinerea*** (Linn.) Wt. & Arn. | Veluthuruchett | Tree | Ph-meso | Root | Rheumatism |
| | 58 | ***Pithecolobium dulce*** (Roxb.) Benth. | Cheemachinta | Tree | Ph-mega | Seed | Diabetes |
| | 59 | ***Prosopis cineraria*** (Linn.) Druce | Jammi | Tree | Ph-mega | Bark | Skin disease |
| 16 | | **CUCURBITACEAE** | | | | | |
| | 60 | ***Citrullus colocynthis*** (Linn.) schard. | Verri pucha | Herb | Ch | Fruit | Jaundice |
| | 61 | ***Cucumis sativus*** Linn | Dosakaya | Climber | Th | Fruit | Urinary disease |
| | 62 | ***Lagenaria siceraria*** (Molina) Standl. | Sorakaya | Climber | Th | Root | Jaundice |
| | 63 | ***Momordica charantia*** Linn | Kakara | Climber | Th | Leaf | Ulcers |
| 17 | | **APIACEAE** | | | | | |
| | 64 | ***Ammi majus*** Linn. | Pitchikothimer | Herb | Th | Leaf | Fever |
| | 65 | ***Centella asiatica*** (Linn.) Urban | Saraswatiaku | Herb | Th | Leaf | Diabetes |
| 18 | | **RUBIACEAE** | | | | | |
| | 66 | ***Adina cordifolia*** Hook. f. ex Brandis. | Bandaru | Tree | Ph-mega | Bark | Dysentery |
| | 67 | ***Mitragyna parvifolia*** (Roxb.) Korth. | Battaganapa | Tree | Ph-mega | Fruit | Eye disease |
| | 68 | ***Morinda tomentosa*** Heyne ex Roth. | Togaru | Tree | Ph-mega | Root | Eczema |
| 19 | | **ASTERACEAE** | | | | | |
| | 69 | ***Ageratun conyzoides*** Linn | Pumpulla | Herb | Th | Leaf | Wounds |
| | 70 | ***Eclipta alba*** Linn | Guntagalaga | Herb | Th | Leaf | Jaundice |
| | 71 | ***Tridax procumbens*** Linn | Gadichamanti | Herb | Ch | Leaf | Dysentery |
| | 72 | ***Xanthium strumarium*** Linn. | Marulamatang | Herb | Th | Seed | Small pox |
| 20 | | **APOCYNACEAE** | | | | | |
| | 73 | ***Alstonia scholaris*** R. Br. | Edakula pala | Tree | Ph-meso | Bark | Asthma |
| | 74 | ***Nerium indicum*** Mill | Erraganneru | Shrub | Ph-micro | Root | Skin disease |
| | 75 | ***Thevetia peruviana*** (Pers.) Merr. | Patchaganneru | Shrub | Ph-meso | Leaf | Cancer |
| | 76 | ***Wrightia tinctoria*** Br. | Ankudu | Tree | Ph-meso | Bark | Psoriasis |
| 21 | | **CONVOLVULACEAE** | | | | | |
| | 77 | ***Argyreia nervosa*** (Burm f.) Boj. | Samudrapala | Shrub | Ph-micro | Root | Wounds |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 78 | ***Evolvulus alsinoides*** Linn. | Vishnukrantha | Herb | Ch | Leaf | Asthma |
| | 79 | ***Ipomoea batatas*** (Linn.) Lam.Tab. | Theepigadda | Herb | Th | Leaf | Scorpion sting |
| | 80 | ***Merremia gangetica*** (Linn.) Cufod. | Nallakula tiga | Herb | Th | Root | Eye disease |

F=Family, sp=species,

## IV. RESULT AND DISCUSSIONS:

Conservation of biological resources and of the indigenous traditional knowledge is essential for sustainable development and managing of natural resources the world over. The history of indigenous knowledge as an old as the human race. This knowledge has always been very important for the people who generate it. It is a matter of survival for them. Many scientists, researchers and environmentalists all over the world are now striving to explore, know, Document and use the resource base knowledge for the welfare of the wider human race. Documentation of ethnic groups' knowledge related to plant resources is known as 'Ethnobotany'. The study deals with the relationships of man to the plant he used or uses. Analysis of information presented in appendix-I indicates that Pedabayalu Mandalam tribes inhabitant of Visakhapatnam district possess rich knowledge about plant resource around them. This is evident form the following fact. A total of 80 angiosperm plant species belonging to 70 genera of 21 families have been identified and recorded for ethnobotanical uses. Out of the 21 families Fabaceae is the dominated family.Out of the total 80 flowering species, 32 are trees, 16 shrubs, 21 herbs, 10 are climber and stragglers. (Table. 1, Fig. 2). This study shows that Trees are dominating the forest. This is probably owing to the semi-arid conditions and erratic rainfall. Further, the scrubby plant species (small trees and shrubs) can be observed as the dominant perennial vegetation of the area.

The various life form classes (Raunchier, 1934) as phanerophytes (nano, micro, meso, mega, epi) are represented by 53 species while chamaeophytes account for 3 species, cryptophytes (geo, helo, hydro) by 3 and therophytes are represented by 21 of the total number of species. The phanerophytes and therophytes dominate in all the parts (Table –I, Fig. 3). The biological spectrum reflects the adaptation of plants to environment and primary climate (Smith 1980). Geographically widely separated plant communities can be very usefully compared with one another on the basis of biological spectrum. Since life forms are related to the environment, biological spectrum is also an indicator of prevailing environment. In the Padabayalu Mandalam, Visakhapatnam district the tribes has been using the indigenous plant species in a crude form. The present study accounts for 80 plant species, which are of medicinal value. As there is no medical pharmacy the medicinal plants are an instantly available form of medication for the indigenous/aboriginal people. These plants are presently receiving an enormous amount of attention. They utilize singly or in combination for the treatment of 30 ailments (Table. 1). The frequent health problems are Dysentery and Skin disorders 16 species are used. The maximum number of plants used for a particular aliment can possibly show the prevalence of the ailment in the area. Various plant parts, such as roots (20 spp), stem (3 spp) leaves (21 spp), flowers (2 spp), seeds (11 spp), stem bark (16 spp), rhizome (1 spp) entire plant (1 spp) and fruits (5) are used for the treatment of the above ailments generally through oral administration (Fig.4).

**fig.1. Study area-Pedabayalu Mandalam.**

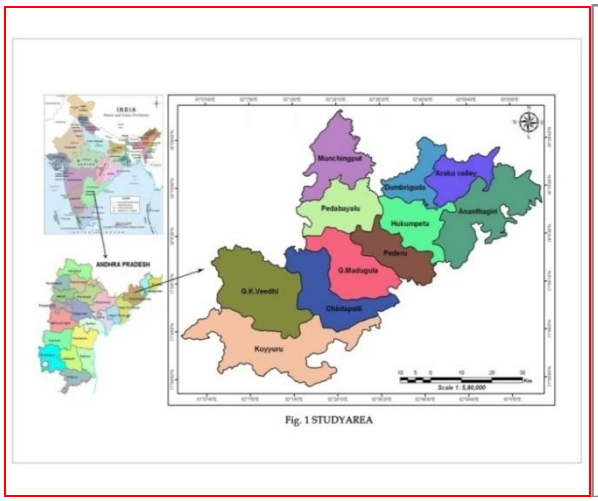
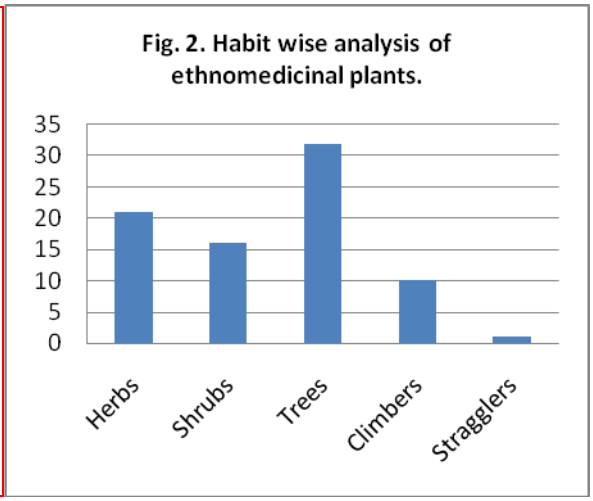
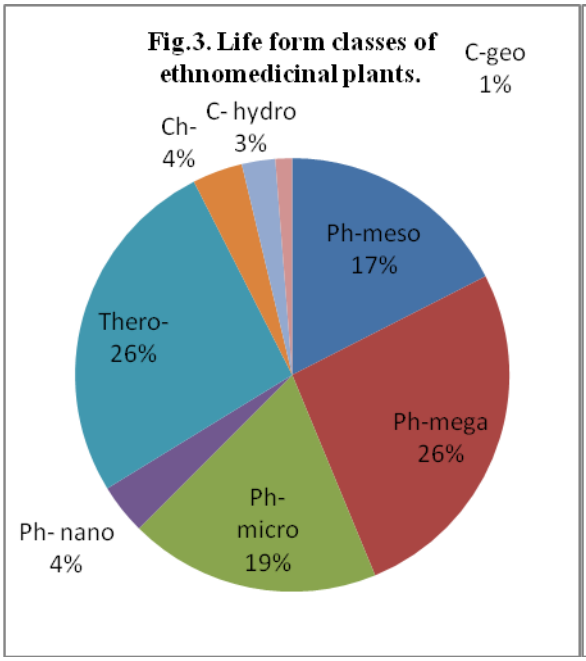
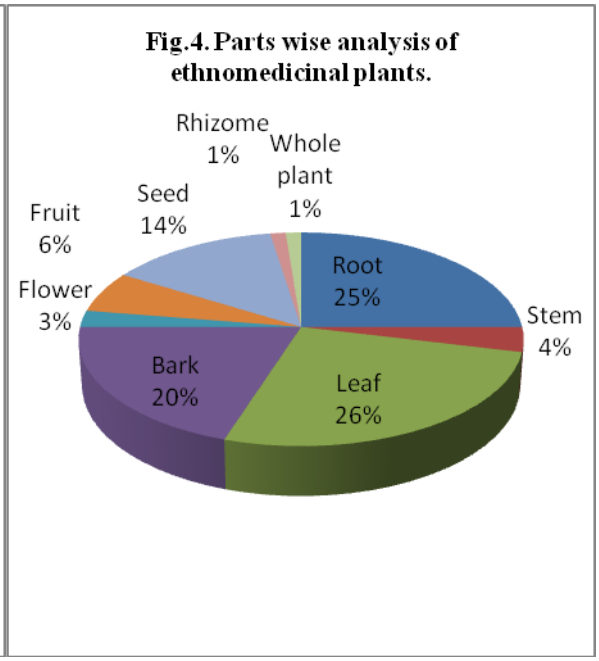


Fig. 1 STUDYAREA






## V. CONCLUSIONS:

However, we feel that the indigenous knowledge and practices of the Padabayalu Mandalam tribes on utilization of plant resources as medicine should be reported and preserved before they get lost due to increasing integration. In the information obtained, there were many details about the appropriate indication of each plant. There are plants that are traditionally employed for specific symptoms or conditions that often accompany itching, allergy and other skin disorders. This vast array of rare medicinal plants can be used for further research only if we ensure proper conservation of these endangered species. Thus researchers should observe ethnomedical information before deciding which kind of screening should be used in the search of drugs for skin diseases which may also be a potential source of modern drug industries.

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