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SURVEY ON ETHNOMEDICINAL PLANTS OF NALLAMALLA FOREST IN PRAKASAM DISTRICT, ANDHRA PRADESH, INDIA

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ABSTRACT:

Medicinal plants have been serving as a chief source of new pharmaceutical products and relatively inexpensive preparatory materials for the manufacture of some very well liked drugs. For the data collection, a survey was conducted about cultural medicinal plants used by traditional healers and tribal people of Prakasam district, Andhra Pradesh during June 2014 to January 2015. The traditional healers in the study area were interviewed and information on medicinal plants was collected. The present survey unveiled use of 100 medicinal plants distributed in 93 genera belonging to 42families. The documented medicinal plants were mostly used to cure Diabetes, asthma, poisonous bites, stomachache, dysentery, throat infections, skin diseases, pains, arthritis, paralysis, Snake bite,

diarrhoea and fever etc. The most prominent family was Fabaceae with 23 species followed by Apocynaceae with 8, Malvaceae with 6, Rutaceae with 6 species, Euphorbiaceae with 5 species and the remaining families with 4 or 3 or 2 plants or sometimes with a single plant. The people have been using various parts of plant to cure diseases in different forms like paste, powder, decoction and juice with or without added ingredients like honey, milk, butter milk, ghee, sugar, turmeric, salt, castor oil, coconut oil, pepper and water. This study showed that many people in the study areas of Prakasam district still continue to depend on cultural medicinal plants at least for the treatment of initial health care. Thus the furnished valuable cultural medicinal plant information will be transferred to younger generations.

KEY WORD: Medicinal plants, Traditional healers, Pharmaceutical value, Tribal areas.

INTRODUCTION:

Medicinal plants have a longstanding history in many indigenous communities, and are an essential part for treating various diseases, particularly to cure daily ailments and this practice of traditional medicine is based on hundreds of years of belief and observations¹. There were 65 medicinal plants reported in Warangal district that are used for the treatment of some common diseases such as, cold, cough, fever, headache, poison bites, skin diseases and tooth infection². Plants are the main source for the discovery of unique antimicrobial chemotherapeutic agents³. More plants show different medicinal activities *viz.*, *Madhuca indica* plant performance the anti HIV activity⁴. India is well recognized as a country that has ecosystem rich in all features of biodiversity like species of plants and genetical diversities mainly due to its tropical location, disparate physical features and climatic condition models⁵. India is one of the mega biodiversity of the world⁶. Since times, ancient man has been using various parts of medicinal plants for the treatment and prevention of many ailments.

The World Health Organization (WHO) assessed that, approximately 80% of world population depends chiefly on traditional medicines, mostly plant based drugs for their health care. Today, ayurvedic medicine coexists with modern system of medicine and is still widely used and practiced. About 30% of the currently used therapeutics is of natural origin⁷. However the ethnomedicinal plants are under threat due to deforestation, overgrazing and their reckless utilization. So, it indicates the urgent need of their conservation. Conservation of biological resources as well as their sustainable use is important in protection of traditional knowledge⁸.

Generally, the rural and tribal people are depending on the ethno botany to treat various disorders⁹. Information is very less on local medicinal plants and these plants parts are used -

traditionally in some tribal areas of Prakasam district. Hence, the present investigation aims to upgrade and document the plants and their parts used exclusively for the treatment of various diseases suggested by traditional healers in different study areas of Prakasam district.

STUDY AREA:

Prakasam district is one of the southernmost districts of Andhra Pradesh lies between 14°57' and 16°17' North latitude and 73°43' and 80°25' East longitude, occupying an area about 17,626 Sq. km. The Nallamalla andVeligondla are the two major hill ranges in the district, of which Veramkonda situated in the Eastern Nallamalla has the highest peak (939 m). The Nallamalla hills which form a part of Eastern Ghats run through this district is distributed by several medicinal plants which are used traditionally by local tribal people¹⁰. The total area of the district is 17,626 square kilometres. The total population of the district is 33; 84,192. The study areas for the present investigation are Dornala, Yerragondapalem, Pullalacheruvu, Ardhaveedu and Giddalurumandals of Prakasam district which are predominantly occupied by tribal communities (Figure 1).

The indigenous people of the study area are of scheduled tribes i.e., Lambadas, Yerikalas and Chenchus. They live at the foot hill of Nallamalla and most of these tribals have a general knowledge of medicinal plants that are used as first aid remedies, to treat cold, cough, fever, headache, snake bites, skin diseases and other common ailments etc. These people acquired their community's knowledge of medicinal plants from their ancestors traditionally.

MATERIAL AND METHODS:

Ethno botanical Survey:

The study area was analysed to get the information from the local tribal practioners and elderly people. A total of five field surveys were carried out from June 2014 to January 2015 in tribal parts of Dornal, Yerragondapalem, Pullalacheruvu, Ardhaveedu and Giddalurumandals of Prakasam district. During each field survey 3 days was spent with the local tribal people. Data on ethnomedicinal information was collected through conversation and informal interviews with traditional healers and local elderly people during the field trips (Figure 2, 3 and 4). During the time of interviews, the plant local name, type of plant, plants part used for curing, method of preparation, any other plants/agents used as ingredients, modes of administration etc. Were recorded for each collected ethnomedicinal plant (Table-1).

The method of collection of voucher specimens, herbaria preparation and technique for the collection of ethnomedicinal information was followed^{11,12}. Herbarium voucher specimens are deposited in the

Department of Botany, and the authentication of the plant species was done by Prof. K. Khasim, Department of Botany, Acharya Nagarjuna University, Guntur, Andhra Pradesh, India. The plant species were enumerated according to family followed by their local names and their medicinal uses.

RESULTS AND DISCUSSION:

In the present study, 100 medicinal plants distributed in 96 genera belonging to 42 families of angiosperms were reported (Table 1). These are used as ethnomedicines for various diseases like asthma, fever, malaria, filaria, hepatitis, arthritis, blood pressure, jaundice, cancer, abortion, anti-inflammations, blood bleeding, cough, diabetes, dandruff, diarrhoea, fertility improvement, kidney diseases, menstrual disorders, body pains, paralysis, ring worm, sugar, stomach pain, dermal diseases, sexually transmitted diseases, poisonous bite, tooth ache, wound healing etc. are cured by using various plants and their parts in the form of extracts, pastes, juices, powders, etc. by traditional healers of Prakasam district.

According to Table-1, the most prominent family of ethno botanical importance is Fabaceae (23 species) followed by Apocyanaceae (8 species), Rutaceae (6 species), Malvaceae (6 species), Euphorbiaceae (6 species), Cucurbitaceae (4 species), Solanaceae (3 species), Asteraceae (3 species), Menispermaceae (3 species), Amaranthaceae (2 species), Phyllanthaceae (2 species), Lamiaceae (2 species), Moraceae (2 species), Zygophyllaceae (2 species), Meliaceae (1 species), Aristolochiaceae (1 species) and Acanthaceae (1 species).

The above 100 ethno medicinal species have different life forms. Trees were the primary source of medicine (39%), herbs (28%), climbers (18%), shrubs (5%), un-shrubs (4%), bulb (1%), creeper (1%), liana (1%), rhizome (1%), twiner (1%), Un-tree (1%) (Figure 5).

The data was collected from the tribal people of study area pertaining to the treatment of various ailments by using plant parts such as leaves, roots, fruits, stem bark, seeds, whole plant, flowers, latex and stem. Among various plant parts used for the preparation of medicine the leaves (50%) known to be the most frequently utilized followed by the fruits (25%), roots (24%), seed (12%), bark (8%), whole plant (6%), flowers (4%), gum resine (3%),latex (3%) stem bark (3%), rhizome (1%), shoot (1%) and tubers (1%) (Figure 6).

The Figure 7, represents different preparations of plant parts for medicinal use. The most commonly used method of preparation was paste (50%), followed by raw (21%) juice (11%), sometimes in the form of curry, decoction (9%), and powder (9%).

The medicinal preparations were made out of a single plant part or sometimes in combination with several parts of the same plant or different plant parts. The local tribals of the study area use some

ingredients like sugar, camphor, candy, curd, honey, oil, milk and turmeric powder for 70% of plants described (Table 1) to improve the acceptability and medicinal property of certain remedies and for remaining 30% of plants medicine is prepared without adding any adjuvant or ingredient.

The medicinal plants based on their use in treatment of different health problems such as jaundice, asthma, diabetes, sexually transmitted diseases (STD), paralysis, snake bite, fever were found to be very cherished. Among the different plant parts used for the preparation of medicine, leaf is the most significant and regularly used part for treatment. Regular method of remedy observed in the present analysis was oral administration of leaves.

Figure 8, shows the number of plants used for treatment of different ailments by traditional healers of Prakasam district. Out of total plants studied, 12 species used for asthma, 12 species used for diabetes, 10 species used for gastro-intestinal ailments, 10 plant species are used for treatment of skin diseases, 9 species used for fever, 9 species used for jaundice, 9 species used for poisonous bites, 9 species used for wounds, 9 species used for for ulcers, 5 species for rheumatid arthritis, 4 species used for joint pains, 3 species used for urinary ailments, 2 species used for dental care and some of same plant species can be used for different problems like allergy, cancer, heart problems, head ache, cough, appetite loss, anthelmintic, leprosy, pyorrhoea, boils, abscesses, eye infections, ear ache, gout diseases, pimples, sun stroke, AIDS, mumps, digestion problems, menstrual problems, reduce bleeding, glossitis, correction of stammering, improve memory, female genital problems, vomtings, and liver infections etc.

Several studies have been made on the medicinal plant resources of Andhra Pradesh which can be effectively used for various diseases by traditional methods ¹³⁻²². Amongst those, important work was done by Rao and Hemadri¹³ in Andhra Pradesh. Similarly, the present work was also conducted on ethno medicinal plants of Nallamalla forest in Prakasam district, Andhra Pradesh, India.

In the present study, 100 ethno medicinal plants were surveyed and their taxonomy and medicinal uses were gathered from tribals and recorded accordingly. These 100 plants distributed in 42 families and 93 genera. The major family was Fabaceae with 23 plant species. The present work is supported by Reddy et al.²³ who studied 80 various medicinal plant species distributed in 47 families from Medak district of Andhra Pradesh. Also given parallel information of 40 medicinal plants used in controlling various ailments which was gathered from sugalis of yerramalais, Kurnool district²⁴.Ravi Prasad Rao and Sunita have reported 69 species of medicinal plants belonging to 36 families and 66 genera in RudrakodSacrad Grove, Nallamalla of Andhra Pradesh²⁵. Balakrishna et al. surveyed 96 medicinal plant species belonging to 44 families in Khammam district of Andhra Pradesh state²⁶.

Also Uma Maheswari et al. reported 144 medicinal plants that come under 30 families. Among those, Fabaceae is the most dominant family and Cycasbeddomei is extinct species in Kadapa district out of total 144 plants²⁷. Padal et al. studied about 95 plant species, of 82 genera and of 50 families which are medicinal plants used for the cure of 32 different diseases²⁸.

The life forms of ethno medicinal plants in the present survey belong to trees (39%), herbs (28%), climbers (18%), shrubs (5%), un-shrubs (4%), bulb (1%), creeper (1%), liana (1%), rhizome (1%), twiner (1%), twiner (1%) and under tree(1%). These findings are collaborated with results of Ramana Naidu et al. who made documentation of 100 ethno medicinal plant species belonging to 54 families and 93 genera which are useful for various ailments²⁹. These are grouped into different life forms such as shrubs (36%), herbs (35%), trees (27%) and climbers (2%) from Nallamalla forest area of Kurnool district in Andhra Pradesh. The similar botanical survey was done by Murthy on 96 ethno medicinal plants belonging to 53 families and categorized into different life forms like trees (41), herbs (30), climbers (19) and shrubs (6) 30. Muniappan and Savarimuthu studied 90 species of plants distributed in 52 families and 83 genera in Tirunelveli hills of Western Ghats of India. These were grouped in different life forms such as herbs (41%), trees (31%), shrubs (18%) and climbers (10%) 31. The most commonly used plant parts for the preparation of plant medicine in the present study are the leaves (50%), followed by the roots (24%), fruits (25%), stem bark (3%), seeds (12%), whole plant (6%), flowers (4%) latex (3%) bark (8%), gum resine (3%), rhizome (1%), shoot (1%), and tubers (1%). The survey on medical plants in Adilabad district of Andhra Pradesh reported about various plant parts used for medicine and major form of medicine was of stem bark ³⁰. The similar work was done by Thirupathy et al. and the various plant parts used were leaves (36%), roots (20%), whole plant (15%), seeds and flowers (14%), fruits (9%) and stem (4%)³². A survey on traditional oral care medicinal plants of Tamil Nadu reported about the various plant parts used for medicine are leaves (25.44%), roots (20.17%), seed/nut/fruits (18.42%), bark (14.03%), young stem/stem/rachis (12.28%), whole plant (9.65%) and gum/latex $(8.77\%)^{33}$.

The preparation and utilization of plant parts for medicine were classified into five types in the present study, of this commonly used method of preparation was paste form (50%) followed by raw form (21%), juice form (11%), decoction form (9%), and powder form (9%). Similar work was done among Kanitribals in Tirunelveli hills of Western Ghats who used paste (42%), powder (18%), juice (17%), raw (13%) and decoction (10%) forms³¹. Same results were reported of ethno medicinal plants, Veeramalai hills at Manaparai Taluk, Tiruchirappalli that five methods were used for the treatment and the different forms were paste (38%), juice (24%), powder (20%), decoction (12%) and fresh water (6%)³².

In the present study a total of 100 ethno medicinal plant species were used for 60 various diseases. Plants of the Fabaceae family is mostly useful for control of several diseases, *i.e.*, diseases of skin, diabetes, gastric diseases, wounds, asthma, fever, snake bites, cough, motions, jaundice, rheumatism, heart problems, cancer, leprosy, blindness, memory loss, correction of stuttering etc. In the present investigation it was revealed that root paste of *Abutilon indicum* is to be taken before meal, twice a day for diabetes and leaves are used as curry for piles treatment. Stem bark decoction mixed with pepper of *Acacia leucophloea* is used for dropsy. Seed and gum resin of *Acacia nilotica* is used for the treatment of ulcers and skin diseases. Root paste of *Asparagus racemosus* is applied and tied with bandage for rheumatoid arthritis. Fruit of *Balanitesa egyptiaca* is used for the treatment of liver and spleen diseases. Leaf juice of *Cordia macleodii* used for fever and stomach pains. Root paste of *Cassi neglauca* helps in treatment of snake bites. Root paste of *Dalbergia latifolia* is applied for leprosy. Leaves of *Cocculus hirsutus* squeezed in water and solidified them aqueous extract is taken orally for sun stroke.

It is observed that the usage of a particular plant species to cure a disease varies from one region to another, even within the same district. Interestingly, the same medicinal plant is often used by the village *vaidyas* in curing different ailments. It has been observed that some plants are known by different names among tribal groups. Therefore, the usage of accurate botanical names of plants for international communication among the medicine practitioners is also equally important. During the study, it has been observed that species like *Abutilon indicum*, *Asparagus racemosus*, *Cocculus hirusutus*, *Tinospora cordifloia*, *Tridax procumbens*, *Wrightia tinctori* etc. have different vernacular names in different localities within the same district. A number of studies have been recorded in Andhra Pradesh about the medicinal plant species utilized for various diseases by the tribal people living in the different forest regions. The various medicinal plants used by the Chenchu tribes in Andhra Pradesh were surveyed by Reddy et al.³⁴. Krishna Mohan and Murthy collected information on various traditional medicinal plants used for different ailments from tribes of Prakasam district¹⁰. Similar study was conducted on ethnomedicinal uses of some plants of Mahabubnagar district³⁵. Goud Sai et al. reported 29 species of Kurnool district and highlighted the native phytotherapy treatment for fever and malaria³⁶.

Reddy and SubbaRaju, listed out the different crude drugs used by the tribals for control of common diseases of East Godavari district³⁷ and this work corroborates with the findings of Sai Prasad Goud

et al.³⁸ and Pullaiah et al.³⁹. Peer researchers studied and explained about the different features on medicinal plants in different regions of Nallamalla forest in Andhra Pradesh related to ethnomedicinal resources⁴⁰⁻⁴³. These ethnomedicinal plant values were also studied by the peer researcher in the area of Bairlooty and Nagalooty in the parts of Nallamalla forest region⁴⁴.

CONCLUSIONS:

The present investigation revealed that medicinal plants still play a most important role in the primary health care of the people. The information gathered from the tribal people and traditional healers is useful for further researchers in the field of ethno medicine, taxonomy and pharmacology. The present study can be used as a model for studying the relationship between plants and people, within the context of Indian cultural medicinal system. The purpose of standardization of traditional remedies is evident to ensure curative efficacy. The value of using ethno medical information is to initiate drug discovery efforts. This study also produced a broad spectrum of information regarding medicinal plants used by tribals. Due to the lack of interest among the younger generation of tribals as well as their empathy to migrate to cities for high-income, we face the opportunity of losing this wealth of knowledge in near future.

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REFERENCES:

- 1. Kala CP. 2005. Current status of medicinal plants used by traditional vaidyas in Uttaranchal State of India. Ethnobot Res Appl; 3: 267-278.
- 2. Rajendra Chary Vijayagiri and EstariMamidala, 2012. Ethnobotanical investigations among traditional healers in Warangal district of Andhra Pradesh, India. Pharmacognosy Journal, Vol 4, Issue 34, 13-17.
- 3. Vermani K, Garg S. 2002. Herbal medicines for sexually transmitted diseases and AIDS. Journal of Ethno pharmacology; 80:49–66.

- 4. Rajendra Prasad Gujjeti and EstariMamidala, 2014. In Vitro Hiv-1 Rt Inhibitory Activity Of Madhucaindica Inner Bark Extracts, Bio life online international journal, Vol.2, Issue.3, 759-763.
- 5. Jain, S.K.1981. Glimpses of Indian Ethanobotany. Oxford & IBH Publishing Co., New Delhi, India.
- 6. Chah, K.F., Eze, C.A., Emuelosi, C.E., Esimone, C.O. 2006. Anti bacterial and Journal of Ethnopharmacology 104,164-167.
- 7. Ramesh K. Verma, GarimaMishra ,Pradeep Singh , K. K. Jha , and R. L. Khosa 2011. Alpiniagalanga – An Important Medicinal Plant: A review, Der Pharmacia Sinica, 2 (1) 142-154.
- 8. United Nations University Institute of Advanced Studies (UNU-IAS). Payyappallimana U, Fadeeva Z, editors. Traditional knowledge and biodiversity. Yokohama, Japan: UNU-IAS; 2013, p. 8-9.
- 9. Venkata Rami Reddy K, NagalakshmiDevamm M and PrayagaMurty P. 2012. Some folk medicinal plants of Bhiravakona hills of Prakasam district, A. P. India. Current Botany; 3(5):51 - 58.
- 10. R. Krishna Mohan and P. V. Bhirava Murthy. 1992. Plants Used In Traditional Medicine By Tribals Of Prakasam District, Andhra Pradesh, Anicent Science of life, Vol No. X1 No.3 & 4, 176 - 181.
- 11. Jain SK and Rao RR, Field and Herbarium Methods, (Today & Tomorrows publication, New Delhi).1977.
- 12. Pullaiah T and Chennaiah E. 1997. Flora of Andhra Pradesh, India. Volume.1, Scientific Publishers, Jodhpur
- 13. Rao RS. Hemadri, K. 1979. Andhra Pradeshlo ManduMokkalu(in Telugu). Hyderabad: Telugu Academy.
- 14. Kapoor SL, Kapoor LD. 19801. Medicinal plant wealth of the Karimnagar district of Andhra Pradesh. Bull Med Ethnobot Res, 120-144.
- 15. Thammanna, NarayanaRao K. 1990. Medicinal plants of Tirumala. Tirupati: Tirumala Tirupathi Devasthanams.
- 16. Rama Rao N, Henry AN. 1996. The Ethno botany of Eastern Ghats of Andhra Pradesh. Culcutta: Botanical Survey of India.
- 17. Pullaiah T. 2002. *Medicinal Plants of Andhra Pradesh*. New Delhi: Regency Publications.
- 18. Jadhav SN, Reddy KN. 2006. Threatened Medicinal plants of Andhra Pradesh. ENVIS SDNP Newsletter, EPTRI:18-28.

- 19. Hemadri K. 2006. Girijanavaidyasarvaswam (in Telugu). Vijayawada: Dr. K. Hemadri House of Tribal Medicine.
- 20. M.N.V. Prasad, K. Padmalatha, K. Jayaram, N.L. Raju (India), Jaime A. 2007. Teixeira da Silva. Medicinal Plants from Deccan Ecoregion, India: Traditional Knowledge, Ethnopharmacology, Cultivation, Utilization, Conservation and Biotechnology-Opportunities and Impediments. *Medicinal and Aromatic Plant Science and Biotechnology*, 1(2): 155-208.
- 21. Murthy GVS, Bejamin JHF, BirBahadur. 2008. Medicinal plants of Andhra Pradesh. Proc A P Akademi of Science, 12 (1and2): 120-137.
- 22. Sravan Prasad M, VenkateshwaraRao. K. N, Santhosha D, Chaitanya. R.S.N.A.K.K, David Banji. 2010. Medicinal plants used by the ethnic practitioners in Nalgonda district, Andhra Pradesh, India. IJRAP 1 (2) 493-496.
- 23. KN Reddy, G Trimurthulu and ChSudhakar Reddy. 2010. Medicinal plants used by ethnic people of Medak district, Andhra Pradesh. IJTK, Vol.9 (1), pp. 184-190.
- 24. KahleelBasha S and G Sudarshanam. 2010. Ethanobotanical studies on medicinal plants used by sugalis of Yerramalais in Kurnool district, Andhra Pradesh, India. IJOP 2. 349-353.
- 25. B. Ravi Prasad Rao and S. Sunitha. 2011. Medicinal Plant Resources of Rudrakod Sacred Grove in Nallamalais, Andhra Pradesh, India J Biodiversity, 2(2); 75-89.
- 26. Balakrishna M, Mythili S, Sravankumar K, Murali T and Mahendra T.2011. Ethno botanical survey of medicinal plants in khammam district, Andhra Pradesh, India. IJABPT 2(4).
- 27. Uma Maheswari P, A Madusudhanreddy, M Rambabu and S K M Basha. 2012. Traditional medicinal flora habituated in various regions of YSR (kadapa) district, Andhra Pradesh, India. *Indian Journal of Fundamental and Applied Life Sciences*, Vol.2 (3), pp.162-175.
- 28. S. B. Padal, P. Chandrasekhar and Y. Vijakumar. 2013. Traditional uses of plants by the tribal communities of salugupanchayati of paderumandalam, Visakhapatnam, district, *AndhraPradesh*, *india*. *IJCER*, Vol 3(5).
- 29. B. V. Ramananaidu, D. HaribabuRao, P. Subramanyam, C. PrabhakarRaju, JayasimhaRayalu. 2012. ethnobotanical study of medicinal plants used by tribals in Nallamalais forest area of Kurnool district, andhrapradesh.IJPAES Vol 2(4).
- 30. EN Murthy. 2012. Ethno medicinal plants used by gonds of Adilabad district, Andhra Pradesh, India. IJPLCP Vol 3(10).
- 31. MuniappanAyyanar and Savarimuthu Ignacimuthu. 2011. Ethnobotanical survey of medicinal plants commonly used by Kanitribals in Tirunelveli hills of Western Ghats, India. Journal of Ethnopharmacology. 134. 851-864.
- 32. Thirupathy S, Vaidyanathan D, Senthilkumar M.S. and M. GhouseBasha. 2013. Survey of ethno medicinal plants, Veeramalai hills at ManaparaiTaluk, Tiruchirappalli, Tamil Nadu, India. Advances in Applied Science Research, 4(6):90-95.

- 33. S Ganesan. 2008. Traditional oral care medicinal plants survey of Tamil Nadu. Natural Product Radiance, Vol. 7(2), pp.166-172.
- 34. Reddy MB, Reddy KR, Reddy MN.1988. A survey of medicinal plants of Chenchu tribes of Andhra Pradesh, India. International J Crude Drug Research, 26: 189-196.
- 35. Kumar Dharmachandra T, Pullaiah, T. 1999. Ethnomedicinal uses of some plants of Mahabubnagar Dist., Andhra Pradesh, India. J Economic Taxonomic Botany, 23(2): 341-345.
- 36. GoudSai Prasad P, Pullaiah T, Sri Rama Murthy K.1999. Native Phytotherapy for fever and Malaria from Kurnool Dist. Andhra Pradesh. J Economic Taxonomic Botany, 23(2): 337-340.
- 37. Reddy KN, Gottumukkala V SubbaRaju. 2005. Ethnomedicine from MareduMilli region of East Godawari Dist. Andhra Pradesh. J. Economic Taxonomic Botany, 29(2): 476-481.
- 38. Sai Prasad Goud P, Murthy K. Sri Rama, Pullaiah T, Babu GVAK. 2002. Screening of Antibacterial and Antifungal Activity of some Medicinal Plants of Nallamalais, Andhra Pradesh, *India.J Economic Taxonomic Botany*, 26(3): 677-684.
- 39. Pullaiah T, Murthy KSR, Goud PSP, Kumar TDC, Vijayakumar R.2003 Medicinal plants used by the tribals of Nallamalais, Eastern Ghats of India. Journ Tropical Medicinal Plants, 4(2): 237-244.
- 40. Sudhakar Reddy C, Reddy KN, ThulasiRao K, Pattnaik C. 2007. Ethnobotanical studies on medicinal plants used by the Chenchus of Nallamalais in Kurnool district, AP, India.Research *Journal of Medicinal Plants*, 1(4): 128-133.
- 41. Rajasekhar Reddy A, Mastan M, Naidu CV, Swamy PM. 2006. A survey of medicinal plants in Nallamalaisi forests of Andhra Pradesh, India. Proc AP Akademi of Sciences, 10(2): 121-127.
- 42. ThulsiRao K, Reddy KN, Pattanaik C, Reddy CS. 2007. Ethnomedicinal Importance of Pteridophytes used by Chenchus of Nallamalais Andhra Pradesh, India. Ethnobotanical *Leaflets*, 11: 6-10.
- 43. Jeevan Ram A, Venkataraju RR. 2007. Rare and little known medicinal plants from Nallamalais of Eastern Ghats, India. Journal of Plant Sciences, 2(1): 113-117.
- 44. ShaliSaheb T. 2008. Medicinal Plant Resources and Conservation in Nallamalis, Andhra Pradesh. Ph.D Thesis. Sri Krishnadevaraya University, Anantapur.

Table.1: List of ethnomedicinal plants from tribal areas of Prakasam district, Andhra Pradesh, India

S. NO	Botanical Name	Vernacular Name in Local Language	Family	Life form	Plant Part used	Medicinal Uses	Preparation
1	Abutilon indicum (L.) Sweet	Duvvenakaya, Tutturabenda, Atibala	Malvaceae	Under shrub	Leaves, Root	Take root paste before daily meal twice a day for Diabetes. Use leaves as a curry and take for 40 days in the food for Piles treatment.	Paste
2	Acacia leucophloea (Roxb.) Willd.	Tella tumma	Fabaceae	Tree	Stem, Bark	The stem bark decoction mixed with pepper for treatment of Dropsy.	Decoction
3	Acacia nilotica (L.) Delile	Nalla tumma	Fabaceae	Tree	Seed, Gum resin	Use Seed and gum resin to Ulcer, Skin diseases and Diabetes.	Raw
4	Acalypha indica L.	Kuppintaku	Euphorbiaceae	Herb	Leaves	Leaf juice poured into nostrils to relieve partial Headache, Skin diseases and Fever.	Juice
5	Achyranthes aspera L.	Uttareni	Amaranthaceae	Herb	Leaves	Leaf extracts mixed with salt for Tooth infections and gastric disorders.	Paste
6	Aegle marmelos (L.) Corrêa	Bilwa patra, Maredu	Rutaceae	Tree	Leaves, Fruit, Bark	Jaundice, vomiting and gum motions.	Raw
7	Albizia lebbeck (L.) Benth.	Dirisena	Fabaceae	Tree	Root, Stem Bark	Stem bark extracts orally and in paste form for Psoriasis and snake bite.	Paste
8	Allium sativum L.	Vellulli, Tellagaddalu	Amaryllidaceae	Bulb	Shoot	Hyper tension, Dismenoria, Asthma, Tuberculosis, Joint pains, Vomiting, Heart	Raw

S. NO	Botanical Name	Vernacular Name in Local Language	Family	Life form	Plant Part used	Medicinal Uses	Preparation
						problems and Anticoagulant.	
9	Aloe vera (L.) Burm.f.	Kalabanda	Xanthorrhoeaceae	Herb	Leaves	Wound healing, Hair fall control and sound sleeping.	Raw
	Alstonia scholaris (L.) R. Br.	Edakula ponna	Apocynaceae	Tree	Flower, Bark	Asthma: dry flower powder with pippallu or honey, joint pains.	Powder
11	Alternanthera sessilis (L.) R.Br. ex DC.	Ponaganti aku	Amaranthaceae	Herb	Root	Indigestion problems	Paste
12	Andrographis paniculata (Burm.f.) Nees	Nela vemu	Acanthaceae	Herb	Leaves	Water soaked leaves in raw form against malaria.	Raw
13	Aristolochia bracteolata Lam.	Tella eswari, Gadidhagadapaku	Aristolochiaceae	Climber	Leaves	Tooth ache, eczema and wounds.	Paste
14	Asparagus racemosus Wild.	Pilli teegalu, Challagadda, Satavari	Asparagaceae	Climber	Fruit,	Menorrhagia and Sterility, Hyper acidity, Rheumatoid arthritis and Piles.	Paste
15	Azadirachta indica A.Juss.	Yepa chettu	Meliaceae	Tree	Leaves, fruits, Root	Skin diseases, Dental hygiene and Rheumatism.	Paste
16	Balanites aegyptiaca (L.) Delile	Gara chettu	Zygophyllaceae	Under Tree	Fruit, root	Fruits for the treatment of Liver and Spleen diseases, Mouth ulcers, Sleeping sickness, the roots for abdominal pains and as a purgative.	Raw
17	Bauhinia variegata L.	Madapaku	Fabaceae	Tree	Root	Root decoction for Dyspepsia or indigestion and antidote for snake bite.	Decoction

S. NO	Botanical Name	Vernacular Name in Local Language	Family	Life form	Plant Part used	Medicinal Uses	Preparation
18	Benincasa hispida (Thunb.) Cogn.	Budida gummadi	Cucurbitaceae	Climber	Fruit, Root	Root paste with warm water to cure Asthma, Bronchitis. Fruit is used to cure Bleeding, Amoebiasis, Stone removal urinary bladder.	Paste
19	Bombax ceiba L.	Buruga chettu	Malvaceae	Tree	Seeds, Fruits	Virility and potency.	Paste
20	Brassica nigra (L.) K.Koch	Avalu	Brassicaceae	Herb	Seeds, Oil	Oil mixed with a little camphor is used to cure Asthma.	Paste
22	Butea monosperma (Lam.) Taub.	Moduga	Fabaceae	Tree	Seed, Resin	Resin from stem is administered for the treatment of Asthma, Jaundice and diarrhoea.	Raw
23	Calotropis gigantea (L.) Dryand.	Tella jilledu	Apocynaceae	Shrub	Leaves	Anti-poisonous, treatment of Cough in children.	Decoction
24	Cassia fistula L.	Rela	Fabaceae	Tree	Seed	Seed powder taken orally for Diarrhoea.	Powder
27	Cassine glauca (Rottb.) Kuntze	Neridi	Celastraceae	Tree	Root	Snake bite.	Paste
28	Cayratia pedata (Lam.) Gagnep.	Gummadi teega	Vitaceae	Climber	Leaves	Ulcers and Diarrhoea	Paste
29	Ceiba pentandra (L.) Gaertn.	Tella buruga	Malvaceae	Tree	Root	Root dried powder by oral route for Cobra bite, Scorpion sting.	Powder
30	Centella asiatica (L.) Urb.	Saraswathi aku, Brahmi	Apiaceae	Herb	Leaves	Dry Leaf powder mixed with water as tonic to improve	Powder

S. NO	Botanical Name	Vernacular Name in Local Language	Family	Life form	Plant Part used	Medicinal Uses	Preparation
						memory and correction of stuttering.	
31	Chloroxylon swietenia DC.	Billudu	Rutaceae	Tree	Gum from Bark	Urinary disorders	Raw
32	Cissampelos pareira L.	Adivi banka teega	Menispermaceae	Climber	Leaves	Root dried powder given orally with water in three doses for Scorpion bite and Snake bite.	Powder
33	Citrullus colocynthis (L.) Schrad.	Chedhu Puccha	Cucurbitaceae	Climber	Root	Leprosy, Tumours, Motions.	Paste
34	Cleome viscosa L.	Kukkavominta	Cleomaceae	Herb	Leaves	Leaf paste applied on forehead for Head ache	Paste
35	Coccinia grandis (L.) Voigt	Chedu donda, Kaki donda	Cucurbitaceae	Climber	Root	Take root paste orally with water for diabetes.	Paste
63	Cocculus $hirsutus(L)$ Theob.	Dusara teega	Menispermaceae	Climber	Leaves	Leaves squeezed in water and solidified aqueous extract taken orally for Sun stroke.	Paste
21	Cordial macleodii (Griff)	Iriki chettu	Boraginaceae	Tree	Leaves; Fruits	Leaf juice mixed with cow milk for fever cough and indigestion. fruits use for mouth ulcers	Juice
73	Cullen corylifolium (L.) Medik.	Bavanchalu	Fabaceae	Herb	Seeds	Leukoderma, Itch, and Ringworm.	Paste
36	Dalbergia latifolia Roxb.	Jittegi	Fabaceae	Tree	Root	Leprosy	Paste
37	Datura metel (L.)	Ummetta	Solanaceae	Herb	Leaves Roots	Asthma and dysentery.	Paste

S. NO	Botanical Name	Vernacular Name in Local Language	Family	Life form	Plant Part used	Medicinal Uses	Preparation
96	Dregea volubilis (L.f.) Benth. ex Hook.f.	Doodipala, kalisaku	Apocynaceae	Climber	Leaves	Boils and Abscesses.	Paste
38	Entada rheedii Spreng.	Jila teega, Adavi chinta	Fabaceae	Liana	Seeds	Seed powder mixed with water for Puerperal fever	Powder
39	Erythrina variegata L.	Baditha	Fabaceae	Tree	Leaves	Joint pains	Paste
40	Erythroxylum monogynum Roxb.	Devadaru, Adivi gorinta	Erythroxylaceae	Shrub	Fruits Roots	Fruits are consumed to cure indigestion and paste of roots in warm water is used to cure cough and skin diseases.	Raw
41	Euphorbia antiquorum L.	Brahma jemudu	Euphorbiaceae	Shrub	Leaves	Cancer, Diabetes.	Raw
42	Euphorbia hirta L.	Nanubalu	Euphorbiaceae	Herb	Leaves	Leaf juice with pepper paste taken orally for Cough, Allergy, Asthma and Snake bite	Juice
43	Euphorbia nivulia Buch Ham.	Aku jamudu	Euphorbiaceae	Tree	Milky Latex	Diuretic and applied externally to heal wounds and ulcers.	Raw
44	Ficus benghalensis L.	Marri chettu	Moraceae	Tree	Prop roots, leaves, fruits	Ulcers, Dental hygiene, vomiting, heart tension, and sterility.	Paste
45	Ficus racemosa L.	Medi	Moraceae	Tree	Leaves, fruits	Diarrhoea and Diabetes.	Raw
46	Gloriosa superba (L.)	Kandla Kalaka, Deyyapu chettu	Colchicaceae	Climber	Tubers	Wound healing.	Paste

S. NO	Botanical Name	Vernacular Name in Local Language	Family	Life form	Plant Part used	Medicinal Uses	Preparation
47	Glycosmis mauritiana (Lam.) Tanaka	Butta chettu	Rutaceae	Shrub	Root	Roots crushed and boiled with water for Dysentery. Root is used as an antidote for Snake bite.	Paste
48	<i>Hemidesmus indicus</i> (L.) R.Br. ex Schult.	Suganda pala	Apocynaceae	Twiner	Leaves	Blood purifier and for treatment of Diabetes.	Paste
49	Hibiscus cannabinus L.	Gongura	Malvaceae	Under shrub	Leaves	Rheumatism	Raw
50	Holarrhena pubescens Wall. ex G.Don	Palabarika	Apocynaceae	Tree	Bark, Latex	Bark powder mixed with milk for Dysentery and latex for wound healing.	Powder
51	Imperata cylindrica (L.) Raeusch.	Dharba gaddi / Sarva siddhi	Poaceae	Herb	Roots	Piles.	Paste
52	Indigofera aspalathoides DC.	NelaVempalli	Fabaceae	Herb	Whole Plant	Skin diseases and Cancer	Paste
53	Lablab purpureus (L.) Sweet	Chikkudu	Fabaceae	Climber	Fruit	Head ache and Cholera.	Raw
54	Limonia acidissima Groff	Velaga	Rutaceae	Tree	Root, fruit leaves	Oral intake of root extract for relieving of Body pains. fruit use for piles and stomach ulcers. Leaves juice mixed with pepper can treat jaundice	Paste
55	Madhuca longifolia (J.Koenig ex L.) J.F.Macbr.	Ippa chettu	Sapotaceae	Tree	Leaves	Stomach ache.	Paste
57	Mimosa pudica L.	Atti patti	Fabaceae	Creeper	Whole Plant	Plant decoction with honey twice a day for a month for treatment of Asthma.	Decoction

S. NO	Botanical Name	Vernacular Name in Local Language	Family	Life form	Plant Part used	Medicinal Uses	Preparation
58	Momordica charantia L.	Kakara	Cucurbitaceae	Climber	Leaves, Fruits	Jaundice, Diabetes, and gastric disorders.	Raw
56	Morinda pubescens Sm.	Sandra	Rubaceae	Tree	Whole Plant	Skin diseases.	Paste
59	Moringa pterygosperma Gaertn.	Munaga chettu	Moringaceae	Tree	Leaves, Fruit, Bark, Root	Diabetes, Liver diseases, Asthma, Hydrosol, Piles, Rheumatoid arthritis, Head ache, Eye diseases, Sterility, Pimples, Skin allergy, Bone and Muscle pains	Paste
60	Mucuna pruriens (L.) DC.	Durada gondi	Fabaceae	Climber	Leaves	Tooth ache	Decoction
61	Murraya koenigii (L.) Spreng.	Karivepaku	Rutaceae	Tree	Leaves	Leaf extract mixed with honey for Cough treatment.	Paste
62	Ocimum tenuiflorum L.	Tulasi	Lamiaceae	Herb	Leaves, Seeds	Leaf juice with honey to cure Cough, leaf juice with pepper powder for Viral fever, only leaf juice applied for pimple removal and to cure skin diseases.	Juice
64	Parthenium hysterophorus L.	Vayyari bhama,	Asteraceae	Herb	Leaves, Flowers.	Reduce bleeding.	Paste
65	Perugularia daemia (Forsk.) Chiov.	Dustapu teega, Juttupaku	Apocynaceae	Climber	Leave, Root	Dysentery, Asthma. And Giddiness. leaf juice for jaundice.	juice
67	Phyllanthus amarus Schumach. & Thonn.	Nela usiri	Phyllanthaceae	Herb	Whole plant	Take the whole plant juice with buttermilk-rice every day morning for Jaundice and	Juice

S. NO	Botanical Name	Vernacular Name in Local Language	Family	Life form	Plant Part used	Medicinal Uses	Preparation
		<u> </u>				Menstrual problems.	
66	Phyllanthus emblica L.	Usiri	Phyllanthaceae	Tree	Fruit	Aids, Diabetes, Piles, and Blindness.	Raw
68	Piper betle L.	Thamalapaku	Piperaceae	Climber	Leaves, seeds	Fever, Skin diseases, Digestion, Cancer.	Raw
69	Polyalthia longifolia (Sonn.) Thwaites	Nara mamidi	Annonaceae	Tree	Stem Bark	Diabetes	Paste
70	Pongamia pinnata (L.) Pierre	Kanuga	Fabaceae	Tree	Fruits	Dry fruits are ground and mixed with pepper taken once a day to cure Whooping cough.	Paste
71	Priva cordifolia (L.f.) Druce	Maga lingaku	Verbenaceae	Herb	Leaves	Leaf paste is used as Antifertility drug and Ulcers.	Paste
72	Prosopis cineraria (L.) Druce	Jammi chettu	Fabaceae	Tree	Bark, Fruit	Diarrhoea, Cough and Skin diseases	Paste
74	Pterocarpus marsupium Roxb.	Yegi	Fabaceae	Tree	Wood	Aqueous extract of wood given orally to cure Diabetes.	Paste
75	Ricinus communis L.	Aamudam	Euphorbiaceae	Under Shrub	Root, Seeds, Leaves	Take the Decoction of dry ginger with root of <i>Ricinus</i> for Rheumatoid. Oil from seeds for Digestion in children.	Decoction
76	Rumex vesicarius L.	Chukka koora	Polygonaceae	Herb	Leaves	One spoon Leaf juice with glass of buttermilk taken thrice a day to relieve from morning sickness during pregnancy, Jaundice and Ear ache.	Juice

S. NO	Botanical Name	Vernacular Name in Local Language	Family	Life form	Plant Part used	Medicinal Uses	Preparation
77	Sapindus emarginatus Vahl	Kunkudu	Sapindaceae	Tree	Fruit	Fruit juice used for Gout diseases, Leprosy and antidote to poison.	Juice
78	Sarcostemma secamone (L.) Bennett	Pulla jemudu	Apocynaceae	Climber	Latex	Latex applied for Wound and Burn healing.	Raw
26	Senna alexandrina Mill.	Nela tangedu	Fabaceae	Herb	Leaves	Constipation, Wounds and boils.	Paste
25	Senna occidentalis (L.) Link	Kasivinda	Fabaceae	Under shrub	Leaves, Root	Paralysis, Psoriasis, Sebum and Diuresis.	Paste
79	Sesbania grandiflora (L.) Pers.	Avisa chettu	Fabaceae	Tree	Flowers, Bark, Leaves	Flowers are used as curry to cure Night blindness, Malaria and Mumps.	Paste
80	Sida cordifolia L.	Chitti mutti, chiru benda	Malvaceae	Herb	Leaves, Fruit	Plant decoction with milk for treatment of all Gout diseases.	Raw
81	Solanum americanum Mill.	Kamanchi	Solanaceae	Herb	Leaves, Fruit	Leaves in the form curry for treatment of Night blindness. Leaf juice given orally every day to cure Heart, Liver, Menstrual problems and Skin diseases.	Juice
82	Solanum surattense Burm.f.	Nelavakudu, challa mulaka	Solanaceae	Herb	Whole Plant	Whole plant decoction of 100ml twice a day to dissolve Stones in urinary bladder and Cough.	Decoction
83	Strychnos nux-vomica L.	Mushti	Loganiaceae	Tree	Leaves	Leaf juice used for Dysentery and leaf paste applied on boils and ulcers.	Juice

S. NO	Botanical Name	Vernacular Name in Local Language	Family	Life form	Plant Part used	Medicinal Uses	Preparation
84	Syzygium cumini (L.) Skeels	Neredu	Myrtaceae	Tree	Leaves, Fruit	Leaf paste is applied on forehead to cure Redness of eye, fruit is given to cure Dysentery.	Paste
85	Tephrosia purpurea (L.) Pers.	Vempali	Fabaceae	Herb	Flower, Root	Flower juice is applied for Eye inflammation and root paste applied on the spots to cure Leukoderma and Stomach pain.	Juice
86	Terminalia chebula Retz.	Karakkai chettu	Combretaceae	Tree	Fruit	Fruit pulp is applied on Wounds and Ulcers.	Paste
87	Terminialia bellirica (Gaertn.) Roxb.	Thandra	Combretaceae	Tree	Fruits	Fruits along with those of <i>T</i> . <i>chebula</i> and <i>Embolic officinalis</i> given orally with honey to cure Dropsy.	Raw
88	Thespesia populnea (L.) Sol. ex Corrêa	Ganga raavi	Malvaceae	Tree	Bark	Bark paste made as capsules given orally with warm water for Leprosy, Diuresis and Vaginal diseases.	Paste
89	Tinospora sinensis (Lour.) Merr.	Tippa teega	Menispermaceae	Climber	Leaves,	Malaria, Jaundice, Leprosy, Heartache and STDs.	Paste
90	Toddalia asiatica (L.) Lam.	Konda mirapa	Rutaceae	Climber	Root, Bark	Root bark powder mixed with water given orally for Dysentery.	Powder

S. NO	Botanical Name	Vernacular Name in Local Language	Family	Life form	Plant Part used	Medicinal Uses	Preparation
91	Tribulus terrestris L.	Palleru	Zygophyllaceae	Herb	Fruits	Boiled fruits with milk and sugar given orally to dissolve the stones in the urinary bladder. Fruit powder with ginger given orally to cure Waist and Joint pains.	Powder
92	Tridax procumbens (L.) L.	Gaddi chamanti, Vagalaku	Asteraceae	Herb	Leaves	Wounds, Antiseptic and Eye inflammation.	Paste
93	Trigonella foenum graceum L.	Menthulu	Fabaceae	Herb	Leaves, Seeds	Allergy, Appetite loss and Cholesterol.	Paste
94	Vigna trilobata (L.) Verdc.	Pilli pesara	Fabaceae	Herb	Seeds	Fresh seed decoction with paste of ginger (3:1) is used to cure for Night blindness and Eye diseases.	Decoction
95	Vitex negundo L.	Vavili	Lamiaceae	Shrub	Leaves	Leaves extracts is used for ulcers. Leaves extract with lime water is used as an anthelmintic.	Paste
97	Wrightia tinctoria R.Br.	Ankudu chettu,	Apocynaceae	Tree	Bark, Leaves.	Ant-Diabetic and Cure puerperal fevers.	Paste
98	Xanthium strumarium L.	Marula maathangi	Asteraceae	Herb	Whole plant	Diabetes.	Paste
99	Zingiber officinale Roscoe	Sonti(dry), Allum(green)	Zingiberaceae	Rhizome	Rhizome	Stomach ache, Fever, Asthma and Diabetes.	Raw
100	Ziziphus jujuba Mill.	Regi chettu, Bhogi pallu.	Rhamnaceae	Tree	Fruits, Leaves	Cold, Pimples, the leaf decoction to remove throat pain, Pyorrhoea and Wounds.	Decoction

S. NO Botanical Name	Vernacular Name I in Local Language	Family	Life form	Plant used	Part	Medicinal Uses	Preparation
						Leaf paste applied on hair for improving Hair growth and colour.	

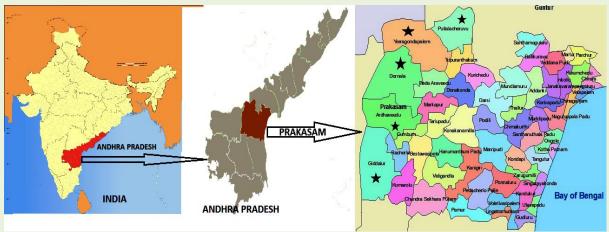


Fig. 1: Maps showing the India, Andhra Pradesh and Prakasam district with five study areas(*).



Fig. 2: The author conversing with local tribal people in Dornala mandal

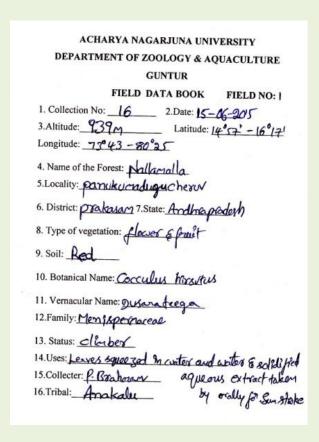


Fig. 3: Format of field datasheet used to recorded the plant details with ethnomedicinal information



Fig. 4: Some medicinal plants pictures from study areas

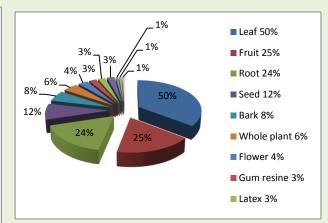


Fig. 5: Habitat wise analysis of ethnomedicinal plants

Fig. 6: Percentage of medicinal plants parts used by the traditional healers



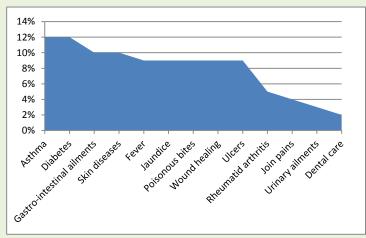


Fig. 7: Methods of preparations

Fig. 8: Number of plants used varies diseases dominant