



Research Article

TRADITIONAL KNOWLEDGE ON MEDICINAL PLANTS OF TRIBALS RESIDING IN HEGGADADEVANAKOTE AND HUNSUR TALUKS OF MYSORE DISTRICT, KARNATAKA, INDIA

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Received: February 18, 2019; Revised: March 11, 2019; Accepted: March 12, 2019; Published: March 15, 2019

Abstract: Karnataka state in the Deccan peninsula is rich in its historic, cultural and anthropological heritage. The age-old practices of the tribal communities are disappearing in recent times. Tribals and their surrounding environment are closely related and they depend on floral wealth for several medicinal purpose. Tribes residing in HD Kote and Hunsur taluk of Mysore district is least explored. Therefore, the present research was aimed to explore traditional ethnomedicinal knowledge of tribes of HD Kote and Hunsur of Mysore district (Karnataka). To record the data pertaining to medicinal plants, a standardized questionnaires and details of traditional healers and resource persons were collected and personalized interviews were conducted regularly on medicinal use of local flora in all the tribal villages during 2015 to 2018. A total of 67 plants species belonging to 62 genera and 37 families were reported to be used for treating various physical ailments in the medical practices. Out of 67 plants species recorded, 25 were herbs (37.87%) followed by 24 trees (36.36%), 14 shrubs (21.21%) and 3 climbers (4.54%) were identified and documented. Among the medicinal plant species recorded, Amaranthaceae (5 species), Fabaceae (5 species) followed by Arecaceae (4 species), Caesalpiniaceae (4 species) and Lamiaceae (4 species) are dominant and there were 23 families represented by a single plant species.

Keywords: Medicinal plants, Tribes, Mysore, traditional knowledge

Citation: Srinivas V., et al., (2019) Traditional Knowledge on Medicinal Plants of Tribals Residing in Heggadadevanakote and Hunsur Taluks of Mysore district, Karnataka, India. International Journal of Agriculture Sciences, ISSN: 0975-3710 & E-ISSN: 0975-9107, Volume 11, Issue 5, pp.- 7966-7970.

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Academic Editor / Reviewer: Dr Teena Agrawal, Kumar D Shiva, Deepika Y S

Introduction

India is one of the major biodiversity rich country having two hotspots and a large number of wild flora and fauna which inhabits a wide variety of plants and has been identified as one of the mega diversity centres of the world [1]. Among these represented numbers, over 1000 genera and 250 families have been used in traditional systems of medicine [2]. A good proportion of medicinal plant species exists throughout the country and highly significant diverse species are found in the peninsular Indian forests and Western Ghats [3]. This rich floristic wealth are important sources for ethnic people / tribal people and they are exploring them for various medicinal practices. People used to care many fatal and infectious diseases using various medicinal plants and their derived products by themselves. Use of these plants/herbs showed the maximum therapeutic effect and minimum side effects as proved by various scientific reports. These may be due to the repeated and experienced utilization of medicinal plants thereby a standardized protocol they have developed over a period of time. In many floristic rich countries like India, the use of plant materials plays a vital role in primary health care as therapeutic remedies and also plays an important role in countries economy [4]. The traditional knowledge and use of medicinal plants are very common in the development of pharmaceuticals perspectives, but they add value significantly for development and validation of new drugs through ethnic knowledge and practices [5]. They are isolated from main stream population and forest occupies a central position in the tribal economy and society (Tribal Health Bulletin, 2014). Mysuru district is located in the southern part of Karnataka, which comprises of around 11.1 % of scheduled tribes with respect to total Mysuru district population (Census, 2011). For the present study, among the seven taluks of Mysuru district, two taluks with higher concentration of primitive tribes were selected for field

survey and analyzed (Department of Tribal Welfare, Mysore, 2014). Karnataka state in the Deccan peninsula is rich in its historic, cultural and anthropological heritage. The age-old practices of the tribal communities are disappearing in recent times. Tribals and their surrounding environment are closely related and they depend on floral wealth for several medicinal purpose. Tribes residing in HD Kote and Hunsur taluk of Mysore district is least explored. Therefore, the present research was aimed to explore traditional ethnomedicinal knowledge of tribes of HD Kote and Hunsur of Mysore district (Karnataka).

Materials and Methods

The study was conducted in tribal regions of HD Kote and Hunsur Taluk of Mysore district; periodical trips were undertaken to the different tribal localities to get the ethno-botanical information and documentation of the plant species for a period of 6 months (January to June 2012). During the survey of medicinal plants in these regions, several herbalists, medicine practitioners were first identified and visited several times to gather information on medicinal usage of plants. In this study, the methodology of Jain [6] of NBRI Lucknow was followed to collect and analyze the data on documentation of indigenous knowledge in the use of medicinal plants. A questionnaire was used to interview the respondents to collect the information about the medicinal plants used by the tribes for treatment for various diseases and disorders. Periodical visits were undertaken to the different tribal camps to document the ethno-botanical information. Information regarding the use of medicinal plants for the cure of various diseases, frequency of visit to forest area for collection, extent of collection of herbs, method of collection, method of processing, methods of formulation, target end-users and extent of cultivation of



Fig-1 The map showing the location of the study area A-India, B-Karnataka, C-Mysore district Map with tribal area pointed with Yellow line

medicinal plants to meet the needs will be documented. The medicinal plant species are enumerated alphabetically with their botanical name family, vernacular name(s) followed by part(s) used are tabulated. Standard methods were followed for the collection of plant materials, and identified by referring to the voucher specimens available in Herbarium of Department of Studies in Botany, University of Mysore, Manasagangotri and also experts were identified the same plants by referring to the standard flora [7-9].

Table-1 Profile of Study site and the respondents

Location		Number of Informants		
		Gender groups		
		Male	Female	Total
Annur haadi*	HD Kote	12	8	20
Padukote haadi*	HD Kote	13	8	21
Masthigudi haadi*	HD Kote	10	5	15
Uddur haadi*	HD Kote	10	6	16
Devara haadi*	HD Kote	15	10	25
Hosur haadi*	HD Kote	8	7	15
Balle haadi*	HD Kote	10	8	18
Macchur haadi*	HD Kote	8	5	13
Kade gadde haadi*	HD Kote	15	10	25
Kolavige haadi**	Hunsur	7	8	15
Nagapura haadi-I**	Hunsur	12	10	22
Nagapura haadi-II**	Hunsur	5	3	8
Shettalli haadi**	Hunsur	7	5	12
Hebbala haadi**	Hunsur	5	5	10
		137	98	235

Table-2 Questionnaire used to survey on medicinal plants used by the tribes of Heggadadevanakote and Hunsur Taluks

1. Name: Address:
2. Occupation: Date of Collection: Col. No.:
3. Taxon: Family:
4. Local Name: Habit: Height/Diameter:
5. Locality:
6. Plant Characters:
 - 6a. Bark:
 - 6b. Leaves:
 - 6c. Stem:
 - 6d. Root:
 - 6e. Flower:
 - 6f. Seed:
7. Smell/odour:
8. Tree/plant part used as medicine:
9. Other plant/tree ingredient used to it:

Results and Discussion

The present study was conducted in a total of 14 tribal areas of HD Kote and Hunsur of which 9 were belonged to HD Kote region and 5 were to Hunsur Taluk region. A total of 235 respondents were interviewed and which includes, 137 males respondent who are aware of the various medicinal plants used in treating

various diseases and ailments followed by 98 female respondents. Tribal regions and region wise respondents and their classification is provided in [Table-1]. A specimen copies of standardized questionnaire used to interview in the present study is presented in [Table-2]. A total of 67 medicinal plant species were recorded. Most of the medicinal plants were dicotyledonous especially herbaceous and equal number of trees were also used in the tribal medicinal system as the data recorded in the current research. Out of 67 plants species recorded, 25 were herbs (37.87%) followed by 24 trees (36.36%), 14 shrubs (21.21%) and 3climbers (4.54%) were identified and documented [Fig-2]. A total of 67 plant species belonging to 62 genera and 37 families were reported to be used for treating various physical ailments in the medical practices [Table-3]. Among the medicinal plant species recorded, Amaranthaceae (5 species), Fabaceae (5 species) followed by Arecaceae (4 species), Caesalpiniaceae (4 species) and Lamiaceae (4 species) are dominant and there were 23 families represented by a single plant species [Fig-3]. Ethnobotanical exploration of medicinal plants especially in tribals regions/areas is very essential as many of the knowledge and / or practices they are aware of, will be lost in due course of time and several important medical knowledges which could be of great help to the mankind may lost. Moreover, the traditional medicinal plants play a very important role in primary health care practices. Nowadays, the area of forest is declining and occupation of tribals is converting into modern villages thereby disturbing the tribal-plant ecosystem in the name of modernization. These will leave a major impact not only on tribal medicinal system and plants but to the overall ecological imbalance in near future. Medicinal plants diversity analyzed and collected in the present study will serve as an important source of information to know about the tribals in HD Kote and Hunsur regions and their life in connection with plants and medicinal system. However, further studies need to be conducted from pure botanical perspectives and need to exploit the tribal knowledge and their medicinal system.

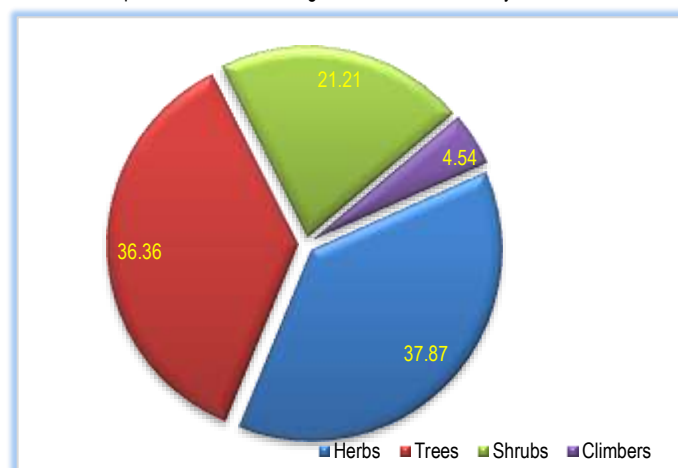


Fig-2 Percentage occurrence of medicinal plant species categorized from the study area

Table-3 Medicinal plants used by tribals of Mysore District (Hunsur and Heggadadevanakote Taluk region) collected during 2015-18

Medicinal plant (Scientific Name)	Family	Local Name	Medicinal Uses	Part Used	Habit
<i>Abrus precatorius</i> L.	Fabaceae	Gulagangi	Seeds used in infections of nervous system. Seed paste applied locally sholder joints and paralysis.	Root, leaf, seed	Shrub
<i>Acacia decurrens</i> Willd.	Fabaceae	Jaalimara	Bark decoction used in dysentery	Bark	Tree
<i>Achyranthes aspera</i> L.	Amaranthaceae	Uttarani	Plant used to treat skin disease, diseases of eyes, surgical wound healer, Piles wholesome food.	Entire plant with root.	Herb
<i>Adenantha pavonia</i> L.	Papilionaceae	Doddagulanji	Leaves, root and seeds are used to treat joint pains, warts and emetic.	Seed, wood, leaf, root	Tree
<i>Aerva lanata</i> (L.) Juss.	Amaranthaceae	BilihindiSoppu	General medicine purpose	Whole plant.	Herb
<i>Albizia odoratissima</i> (L.f.) Benth.	Fabaceae	Bilvaramara	Skin disease (bark paste, flower), piles (seed), herpes (flower, bark).	Bark, Seed, Wood Flower.	Tree
<i>Alstonia scholaris</i> (L.) R.Br.	Apocynaceae	Maddale	Foul Wounds, Sinus, Skin disease	Bark	Tree
<i>Alternanthera pungens</i> Kunth.	Amaranthaceae		Plant diuretic, decoction given in gonorrhoea	Whole plant	Herb
<i>Amaranthus spinosus</i> L.	Amaranthaceae	Mullukeeresoppu	Urinary disorder, piles, purpura.	Root, leaf, stem, tender parts	Herb
<i>Amaranthus tricolor</i> L.	Amaranthaceae	Dantinasoppu	Urinary disorder, piles, purpura.	Root, leaf, whole plant	Herb
<i>Annona reticulata</i> L.	Annonaceae	Ramphala	Unripe fruits used as anthelmintic.	Root	Tree
<i>Annona squamosa</i> L.	Annonaceae	Seethaphala	Unripe fruits used as anthelmintic.	root, seed, bark, fruit	Shrub
<i>Anthocephalus chinensis</i> (Lam.)	Rubiaceae	Kadamba	Bark used as tonic, for burning sensation, poisoning, wounds, cough, alleviating kapha.	Bark, fruit, stem, leaf, seed	Tree
<i>Argemone Mexicana</i> L.	Papavaraceae	Daturigida	Yellow juice of the plant used to treat scabies and skin related diseases.	Whole plant, root, seed, oil, latex	Herb
<i>Argyrea cuneata</i> (Willd.) Ker.	Convolvulaceae	Kallanahambu	Used to treat bleeding, wounds, and as carminative, constipator.	Leaves	Shrub
<i>Artocarpus heterophyllus</i> Lam.	Moraceae	Halasu	Used to treat bleeding, wounds, indigestion, stomachache.	Ripe and seeds, leaves, latex	Tree
<i>Asclepias curassavica</i> L.	Asclepiadaceae	-	Root and Leaf juice anthelmintic, anti-dysenteric. Latex used to remove warts and corn.	Whole plant, Root, latex	Herb
<i>Azadirachta indica</i> A. Juss.	Meliaceae	Bevinamara	Leaves antiseptic, applied to boiles. Berries purgative, emollient. Seed oil used in skin problems, Fresh tender twigs used to clean teeth.	Bark, Leaves, Flowers, Seeds	Tree
<i>Basilicum polystachyon</i> (L.) Moench.	Lamiaceae	-	Decoction of leaves given as sedative, in epilepsy, palpation of heart, neuralgia and convulsion.	Leaves	Herb
<i>Basella rubra</i> L.	Basellaceae	Indian spinach	Used to treat blood cancer, Bruises and Burns	Whole plant	
<i>Bauhinia purpurea</i> L.	Caesalpiniaceae	Mandara	Bark used in diarrhoea, These are also used for cooling, cough, menorrhagia, bleeding piles, ulcers, stomachache	Root, Flower, Bark	Tree
<i>Bauhinia variegata</i> L.	Caesalpiniaceae	KempuMandara	Worm infestation, wounds, cough, haemorrhage, glandular swellings, constipation, & obesity.	Root, Bark, Flower	Tree
<i>Biophytum reinwardtii</i> (Zucc.) Klotzsch.	Oxalidaceae	-	Decoction febrifuge. Leaves and roots used in insomnia.	Leaves	Herb
<i>Borassus flabellifer</i> L.	Arecaceae	Taalemara	'Nira' used as stimulant (drink). Used to treat bleeding, burning sensation, constipation, amenorrhoea, dysuria, skin diseases, fever, general ability, cooling restorative	Root, Leaves, Inflorescence Fruit, Seed Ash	Tree
<i>Brassica juncea</i> (L.) Czern. & Coss.	Brassicaceae	Sasuve	Coryza, headache, pruritus, leprosy, worm infestation, diseases of nervous system, anorexia, pain, urticaria, hiccup, emetic.	Seed, Oil	Herb
<i>Breynia vitis-idaea</i> (Burm. f.) Fisch.	Euphorbiaceae	-	Leaf juice given after parturition to prevent haemorrhage. A stringent bark used to guard against haemorrhage.	Leaves	Shrub
<i>Breynia retusa</i> (Dennst.) Ait.	Euphorbiaceae	-	Leaves employed as poultice to hasten suppuration, used as galactagogue, Bark for diseases of nervous system, oedema, disorders of blood.	Leaves, Bark	Herb
<i>Butea monosperma</i> (Lam.) Taub.	Papilionaceae	Muthuga	Bark astringent, used in piles, tumours and menstrual disorders. Gum called Buteagumisastringent and used in diarrhoea. Extract of seeds, flowers and leaves reputed to have contraceptive property.	Bark, Flower, Seed, Resin, Leaf	Tree
<i>Caesalpinia pulcherrima</i> (L.) Sw	Caesalpiniaceae	Kenjigemar	Leaves purgative, tonic and Emmenagogue	Bark, Leaves, flowers	Shrub
<i>Calamus thwaitesii</i>	Arecaceae		Bleeding disorder; Diarrhoea; Eryseps; Fever; Leprosy; Metabolic disorder; Skin diseases; Ulcers.	Tender leaves, bark	Climber
<i>Cannabis sativa</i> L.	Cannabinaceae	Bhangigid	Piles, diseases of kapha and vata, headache, pain, diarrhoea, dysentery, stomachache, uterine disorders, antipyretic, sedative, anaesthetic.	Leaves, Leaf, Resin	Herb
<i>Canscora diffusa</i> (Vahl) R.Br.	Gentianaceae		Anorexia, somatitis, piles, abdominal disorders, sterility in female, insomnia, epilepsy, psychosis, skin diseases, carminative, rejuvenator.	Whole plant	Herb
<i>Canthium parviflorum</i>	Rubiaceae	Kharegida	Anthelmintic, distate disorders of throat, alleviating pain.	Fruits, Root, Seed	Shrub
<i>Capparis spinosa</i> L.	Capparidaceae	Katharimullinagida	Diuretic, expectorant, tonic, infection of liver, rheumatism, tubercular glands	Bark	Shrub
<i>Careya arborea</i> Roxb.	Lecythidaceae	Hennumathi	The bark of Kumbhi used in the form of decoction to treat Sinus. Anthelmintic, Antiseptic, Abscesses, Colic, Snakebite, Tumours, Ulcer	Root, Bark	Tree
<i>Caryota urens</i> L.	Arecaceae	Bagane	Diarrhoea, migraine, scorpion-sting poisoning, Thirst	Leaf bud, seed, Toddy	Tree
<i>Cassia fistula</i> L.	Caesalpiniaceae	Kakke	Used in treatment of diabetes, tumours, skin disease, herpes, medicated wick in fistula	Fruit pulp, Leaf	Small tree
<i>Calotropis gigantea</i>	Asclepiadaceae		Used to treat abdominal disorders, piles, worm infestation, cough, snake bite, swelling in joints, skin diseases.	Root, Bark, Leaf, Flower, Latex	Shrub
<i>Calotropis procera</i>	Asclepiadaceae		Used to treat abdominal disorders, piles, worm infestation, cough, snake bite,	Root, Bark, Leaf	Shrub

			swelling in joints, skin diseases, dyspnoea.	Flower, Latex	
<i>Cocos nucifera</i> L.	Arecaceae	Tenginamara	Urinary disorders, thirst, gastritis, haemorrhage, pain in bladder, diseases of pitta, fever, polyuria, leucorrhoea.	Root, Flower, Fruit, oil, shell, ash, spadix	Tree
<i>Colocasía esculenta</i> (L.) Schott	Araceae	Kesavegadde	Used to treat piles, Juice of the Petiole used as astringent and styptic	Corm, Leaves	Herb
<i>Commelina benghalensis</i> L.	Commelinaceae	Doddagubbachi	Used to treat haemorrhage, dysuria, fever, demulcent, emollient and refrigerant.	Whole plant	Herb
<i>Cordia obliqua</i> Willd.	Boraginaceae		Used as expectorant, worm infestation, wounds, pain, poisoning, cough, abscess, skin diseases and colic.	Bark, leaf, fruit, seed	Tree
<i>Coriandrum sativum</i> L.	Apiaceae	KottumbariDhaniya	Used to treat vomiting, cardiac diseases, pain, cough, piles, fever, and headache.	Whole plant, Fruit, Oil Seed	Herb
<i>Curcuma longa</i> L.	Zingiberaceae	Harishina	Leprosy, urticaria, skin Diseases, polyuria, jaundice, ascites, anaemia, pox, fever, eye diseases.	Rhizome	Rhizomatic herb
<i>Emblíca officínalis</i> Gaertn.	Phyllanthaceae	Bettadanelli	Used to treat chronic diseases, chronic fever, vomiting, constipation, eye diseases, haemorrhage, cough, anaemia, fainting, piles	Fruit, Bark, Leaf, Flower, Seed.	Tree
<i>Holoptelia integrifolia</i>	Ulmaceae	Kaadukadalemara	Used to treat Piles, abdominal diseases, vomiting, diseases of vatam.	Bark	Tree
<i>Ichnocarpus frutescence</i>	Apocyanaceae	KaggaliAmbu	Tonic, dyspepsia, Skin troubles, Gall stone	Root	Climber
<i>Leonotis nepatífolia</i>	Lamiaceae	-	Used to treat skin infection, rheumatism, nasal disorders, stomatitis, indigestion, worm infestation.	Flower, leaf	Herb
<i>Leucas aspera</i> (Willd.) Link.	Lamiaceae	Thumbegida	Used to treat chronic, skin, eruption, Cold, fever, eye diseases, snake-bite, poisoning, nasal disorders,	Leaf, Flower	Herb
<i>Madhuca longifolia</i> Koen.	Sapotaceae	Hippe/ Sannahippe	Used to treat rheumatism, skin infection, constipation, piles, tonic, sprue, fever, gout, thirst, aphrodisiac.	Flower, seed, root, bark, stem, oil cake	Tree
<i>Morinda pubescens</i> Sm.	Rubiaceae	-	fever, ulcers, glandular swelling, digestive disorders especially in children	Root, leaf, fruit and bark	Tree
<i>Murraya koiníghii</i> (L.) Spreng	Rutaceae	Karibevu	Used to treat stomach ache, carminative, diarrhoea, dysentery, vomiting, dropsy, dysentery, diarrhoea, chronic fever, mental disorders, nausea	Leaves, root, bark	Shrub
<i>Nelumbo nucifera</i> Gaertn.	Nelumbonaceae	Tavarehoovu	Used to treat burning sensation, boils, haemorrhage, sterility, skin diseases and bleeding piles.	Root, flower, seed, tuber, anther	Herb
<i>Oscinum sanctum</i> L.	Lamiaceae	Thulasi	Used to treat fever, coryza, mental disorders, diseases of vatam and kapham, digestive disorders, cough, dyspnoea, leucorrhoea, ulcers	Leaves, Seed	Herb
<i>Pennisetum americanum</i> (L.) Leeke	Poaceae	-	Diseases of Kapha and vatha, tonic, cooling piles	Grains.	Herb
<i>Phyllanthus niruri</i> L.	Phyllanthaceae	-	Used to treat stomach, diuretic, dysentery, urino-genital disorders, jaundice, vomiting.	Whole plant.	Herb
<i>Pongamia pinnata</i> (L.) Pierre.	Fabaceae	Vange Mara	Used to treat poisoning, worms, wounds, diseases of head, stomach disorders, and skin eruption, pain	Bark, leaf, seed, flower, root	Tree
<i>Pterocarpus marsupium</i> Roxb.	Fabaceae		Used to treat worms, wounds, dysentery, vomiting, dental disease, skin diseases	Heart wood, leaf, gum, stem bark	Tree
<i>Rauwolfia serpentina</i> (L.) Benth.	Apocyanaceae	Sarpagandha	Used to treat worms, anorexia, pain, poisoning, hypertension	Root.	Shrub
<i>Ricinus communis</i> L.	Euphorbiaceae	Aralennegida	Used to treat worms, chest pain, cough, dyspnoea, dysuria, constipation, fever, jaundice	Root, Leaf, Seed, Oil	Shrub
<i>Solanum nigrum</i> L.	Solanaceae	Ganake Hannu	Used to treat piles, fever, hiccup, vomiting, rejuvenator, tuberculosis, stomatitis, ascites	Leaf, Fruit, Whole plant	Herb
<i>Solanum torvum</i> Sw.	Solanaceae	Sundekaayi	Used to treat cough, digestive,	Whole plant, Root.	Shrub
<i>Terminalia chebula</i> Retz.	Combretaceae	Alalekaayi	Used to treat stomachache, tonic, alternative, diuretic, cardio tonic, asthma, anorexia, piles, jaundice, and skin diseases.	Fruit, Bark	Tree
<i>Tinospora cordifolia</i> (Thunb.) Miers.	Menispermaceae	Amruthaballi	Used in treatment of Fever, jaundice, worms, poisoning, vomiting, snake bite poisoning.	Leaves	Climber
<i>Vitex negundo</i> L.	Verbenaceae	Lakkigida	Used to treat ear diseases, pain, wounds, cold, abdominal disorders, distaste, intermittent fever, worm infestation.	Leaves, Root, Fruit, Bark	Shrub
<i>Zingiber officinale</i> Roscoe	Zingiberaceae	Shunti	Used to treat wounds, indigestion, cough, stomach diseases	Rhizome	Herb

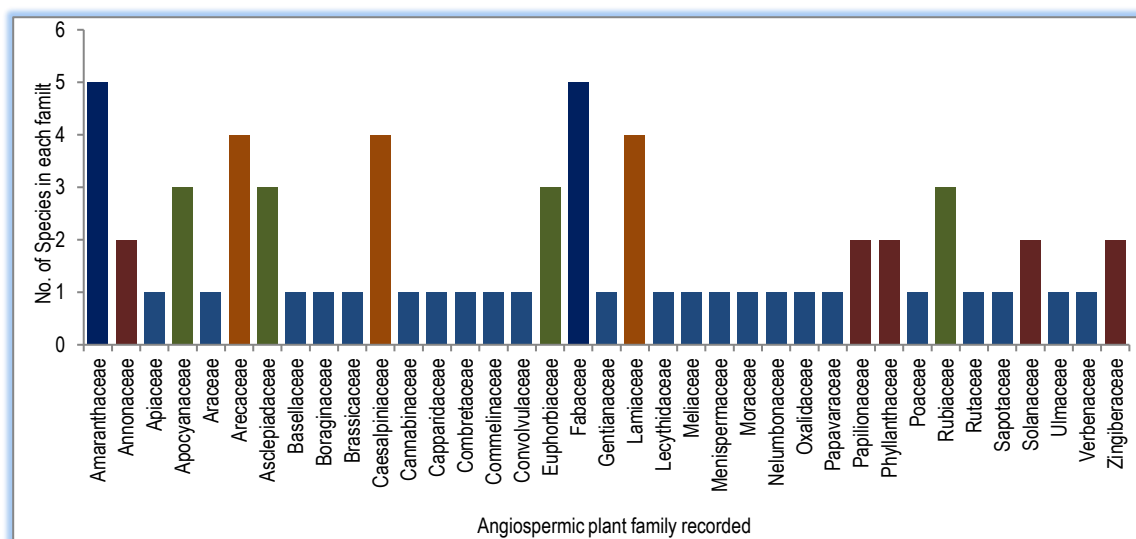


Fig-3 Bar graph representing number of medicinal plants recorded in each angiospermic family from tribal regions of HD Kote and Hunsur

Application of research: The study helps to know the practices of tribals and their association with indigenous plants. Further, the ethnic knowledge and validation of the medicinal plants which may yield better and valuable results and may open the door for pharmaceutical industry.

Research Category: Tribal medicines, medicinal plants

Acknowledgement / Funding: Authors are thankful to University Grants Commission of India for providing financial assistance through UGC-RGN Fellowship and UGC-Post Doctoral Fellowship. Authors are also thankful to Dr Mahadevakumar, S., CSIR-Research Associate, Department of Studies in Botany, University of Mysore, Manasagangotri, Mysuru for identification of medicinal plants for this research.

***Research Guide or Chairperson of research: Dr Anjaneya S.**

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Research project name or number: Research station trials

Author Contributions: All authors equally contributed

Author statement: All authors read, reviewed, agreed and approved the final manuscript. Note-All authors agreed that- Written informed consent was obtained from all participants prior to publish / enrolment

Study area / Sample Collection: H. D. Kote and Hunsur Taluks of Mysore district and within Mysore.

Cultivar / Variety name: 67 plant species of medicinal plants

Conflict of Interest: None declared

Ethical approval: This article does not contain any studies with human participants or animals performed by any of the authors.

Ethical Committee Approval Number: Nil

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