

# Medicinal Plants of Yadahalli Chinkara Wildlife Sanctuary, Bagalkot, Karnataka, India

Maheshwari Koti\* and K. Kotresha

Taxonomy and Floristic Laboratory, Department of Botany,  
Karnatak University's, Karnatak Science College, Dharwad - 580 001

## Abstract

The protected area has a significant role in the conservation of medicinal plants along with the traditional knowledge. A medicinal plants survey was conducted during 2017 to 2019 in the vicinity of Yadahalli Wildlife Sanctuary, situated in the Bagalkot District of Karnataka. In the present study, 36 medicinal plant species belonging to 20 family and 35 genera have been recorded against the 40 different types of ailments which were used by medicine men. The Information about the botanical name along with local names, habit, parts used and medicinal uses of these plant species also been documented. The present study aimed to document the traditional medicinal plants of the study area and promote the awareness among the local people and forest official to conserve these medicinal resources.

**Key words:** *Bagalkot, Medicinal Plants, Traditional Knowledge, Yadahalli Chinkara Wildlife Sanctuary*

## Introduction

Medicinal plants are the natural treasure of various kinds of ecosystem and they are served as an important therapeutic agents as well as valuable raw materials for manufacturing various traditional medicine and modern day medicines. No doubt, Allopathic medicines can cure a wide range of diseases, but ultimately they have high cost and maximum side effects too. Hence, human population is dependent on traditional medicinal plants for their health care. According to World Health Organization (WHO), 80% of the world population is depending upon the traditional medicine for their primary healthcare system <sup>[1]</sup>.

In India, medicinal plants served as the main source of medicine to the rural as well as tribal people <sup>[2]</sup>. There are considerable economic benefits in the development of indigenous medicines and also the use of medicinal plants for the treatment of various diseases in these areas <sup>[3]</sup>. Due to fast growing human population and eventually increase in developmental activities like urbanization, mining, dam construction etc. have resulted in the decline in regional biodiversity as well as the interest in traditional medicinal practices. Therefore, there is an urgent need to document all the information on plants used by different local or tribal people for various purposes before it lost completely, otherwise the knowledge should be transfer to the younger generation <sup>[4]</sup>.

Several ethnobotanical works were carried out by many researchers at the adjacent districts areas such as Gadag [5,6,7,8,9,10,11,12], Vijayapur [13,14], Kalaburagi (previously known Gulbarga) [15,16,17,18] and Koppal [19]. Ethno-botanical literature of Bagalkot district reveals that, the documentation of traditional medicinal plants is limited to only Badami area [20]. Hence, there is no earlier report on the medicinal plant documentation of the study area. Therefore, the survey was undertaken to document traditional knowledge of the medicinal plants of Yadahalli Chinkara Wildlife Sanctuary, Bagalkot, Karnataka, India.

## Material and Methods

**Study Area:** The study area covers 9636.91 hectares of land of twelve villages, 9 from Bilagi taluka and 3 from Mudhol taluka (Figure 1). Geographically, this sanctuary is featured by the chain of hills and the height being about 550 to 750 msl. Temperature ranges from 14° C to a maximum of about 38° C and average annual rain fall is 583 mm in Bilagi taluka and 558 mm in Mudhol taluka [21]. The sanctuary is easily accessible to the native communities for their needs of fire wood and other NTFPs. People of these twelve villages including about ten 'tanda's the localities of *Lambani* community are dependent on the forest for the collection of wild edible fruits, medicinal plants, firewood and cattle fodder since long back.

**Data Collection:** The data was collected between May 2017 to April 2019 from seven villages of Bilagi taluka viz., Arakeri, Janamatti, Sunag, Yadahalli, Teggi, Amalazari and Bilagi belong to Bilagi forest range of Yadahalli chinkara wildlife sanctuary. The collected plant samples were pressed and prepared herbarium followed by dry methods and deposited in the Herbarium of Botany Department, Karnatak Science College, Dharwad [22]. Identification of species was done with the aid of floras [23,24,25,26]. All possible information regarding the traditional use/s, part/s used and ailment cured were collected from 20 informants. A questionnaire prepared for survey and the group discussions were conducted to elaborate the methods of preparation, mode of administration and storage of medicinal plants. Interviews were conducted in local "Kannada" language.

## Results

About twenty informants between 20 and 80 age groups were interviewed. Most of them acquired this knowledge from their parents, grandparents and also from their interaction in the community. A total of 36 medicinal plants belongs 35 genera and 20 families were documented in the study area. The medicinal plant species are enumerated with their family name, habit, local name (in Kannada), ailments and mode of preparation and dosage is represented in Table 1.

## Discussion

A total of 36 medicinal plants belonging to 35 genera and 20 families were documented in the study area. Among 20 families, the family Fabaceae was represented by with 7 species, followed by Asteraceae with 4 species, Apocynaceae, Amaranthaceae and Euphorbiaceae with 3 species. The family Zygophyllaceae was represented by 2 species. Remaining fourteen families were represented by only one species each, they are Acanthaceae, Aristolochiaceae, Cactaceae, Capparaceae, Convolvulaceae, Cucurbitaceae, Lamiaceae, Malvaceae, Meliaceae, Menispermaceae, Moraceae, Nyctaginaceae, Santalaceae and Violaceae.

Dominance of these families is due to their adaptability to the dry climatic condition. Most of these families have a large number of herbs<sup>[27]</sup>. An analysis on the life form composition of medicinal plant species of the study area reveals that majority of the plant species are herbs which contributing with 15 species followed by shrubs with 9 species, trees with 7 species each and climbers with 5 species. According to the survey, part used in the preparation of medicine reveals that the contribution of leaves (28%) followed by whole plants (24%), fruits (11%), stems and fruit pulp (7%) each, seeds (4%), seed oil, root bark, roots, prop roots, ripe fruits, bark paste and wood (2%) each in the various treatments.

There are several medicinal plants in the treatment of some of the ailments was not reported elsewhere, such as latex of *Calotropis procera* (Ait.) R.Br. and *Euphorbia tirucalli* L. of was found to be used for a unique treatment, i.e., for removing the spine or thorn splinter in foot. This treatment is exclusively used in this area and people are of the opinion that it is effective however deep the splinter may be pierced. The whole plant of *Ceropegia juncea* Roxb. is used to prepare digestive juice. Apart from this, some of the treatments were reported from earlier worker, for examples, the whole plant of *Tinospora cardifolia* (Willd.) Hook. f. &Thoms. used against the diabetes, *Eclipta alba* (L.) Hassk., used against the hair growth, *Cassia fistula* L., used as a laxative and *Hybanthus enneaspermus* (L.) F. Muell. used as aphrodisiac<sup>[6,7,8,9,10]</sup>.

## Conclusion

In the present survey, 36 medicinal plant species used for the treatment of various disease of human beings. The diseases like Jaundice, aphrodisiac, renal calculi, indigestion, diabetes and menstrual problem found in human beings was well reported and documented. The rural people of Yadahalli Chinkara Wildlife Sanctuary area are highly dependent on the traditional herbal medicine. There is still enormous traditional knowledge hidden among the medicinal plant practitioners in the study area which requires some other strategies to disclose. It is found that ethno-medicinal knowledge is becoming restricted only to the elders and traditional practitioners, while young people are totally unaware about this wealth. Advancement in science and technology has changed the social values and therefore, younger generation are transforming at a much faster rate into the new tradition. Medicinal plants knowledge is going to be obsolete because of the interference of modern cultural changes. This situation appears to occur in many parts of the country and world. It is therefore very important to document the native flora along with their ethno-medicinal recipes before extinction of the indigenous knowledge.

## Acknowledgments

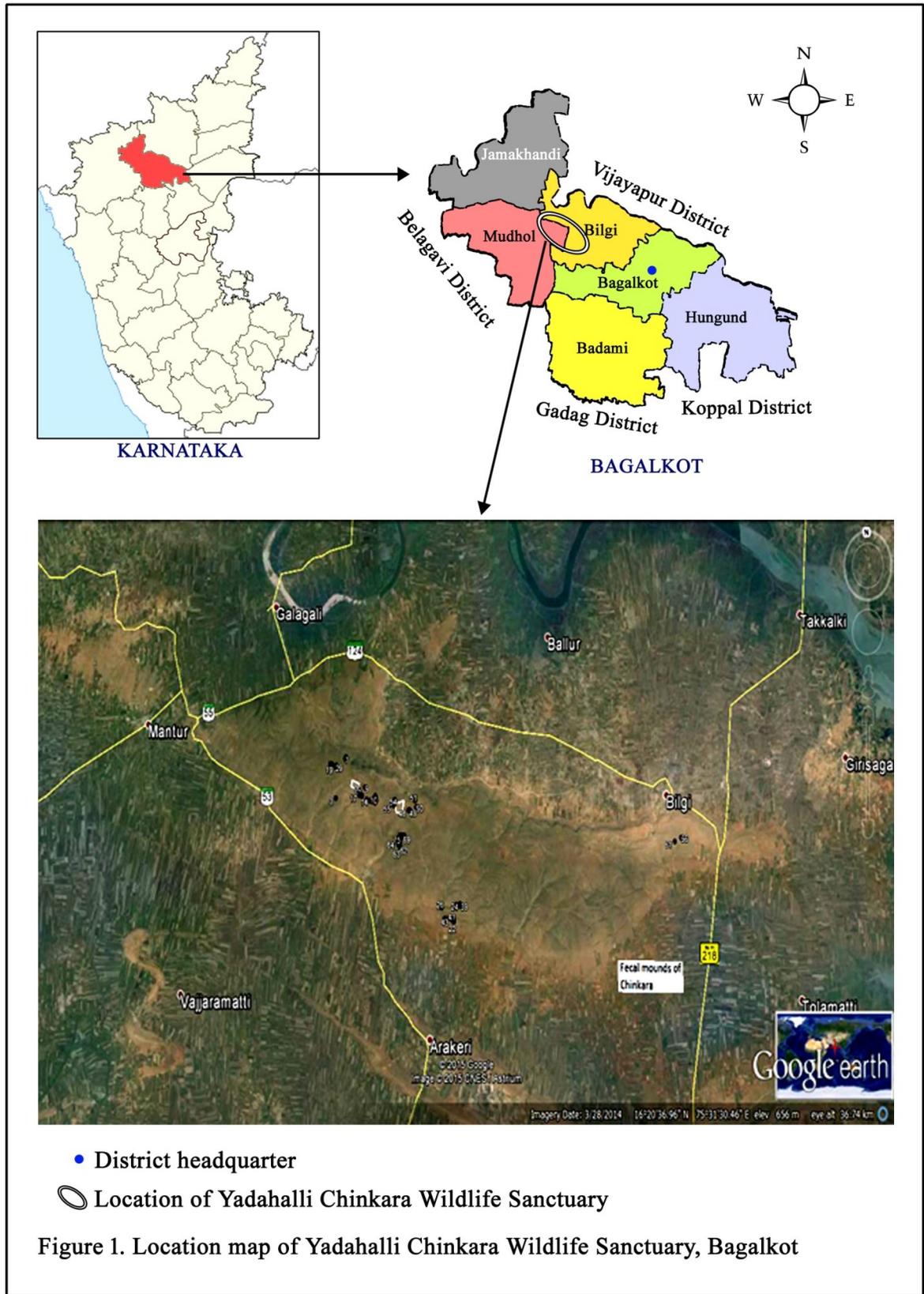
Authors are very much thankful to Mr. Ravi Savannavar, a local youngster of Yadahalli village for directing us in the forest. We express our gratitude to Dr. Sidanand V. Kambhar for his due suggestions in the preparation of this manuscript. We remain thankful to the local people or traditional herbal practitioners of Bilagi taluka who have shared their knowledge with us during field collection.

## References

- [1] World Health Organization **2001**. General Guidelines for Methodologies on Research and Evaluation of Traditional Medicine. Geneva, Switzerland.

- [2] Azaizeh H., Fulder, S., Khalil, K. and Said O. **2003**. Ethnomedicinal knowledge of local Arab practitioners in the Middle East Region. *Fitoterapia*, 74: 98-108.
- [3] Savinaya, M.S., Patil, S.S., Narayan, J., and Krishna V. **2016**. Traditional medicine knowledge and diversity of medicinal plants in Sharavathi valley region of central Western Ghats. *International Journal of Herbal Medicine*, 4(6):124-130.
- [4] Rajkumar, N. and Shivanna, M.B. **2010**. Traditional knowledge in Sagar Taluk of Shimoga District, Karnatak, India. *Indian Journal of Natural Products and Resources*, 1(1):102-108.
- [5] Kotresha K. and Kambhar, S.V. **2010**. Traditional Orthopedic Treatment with Medicinal Plants. *Indian Forester*, 136(9):1281-1282.
- [6] Harihar, N.S. and Kotresha, K. **2010**. Wild Medicinal Plants of Kappat Hills, Gadag District, Karnataka. *Rev. Biomed. Biotech.* 1(2):111-118.
- [7] Kotresha K. and N.S. Harihar **2011**. Uses of *Cochlospermum religiosum* (L.) Alston [Cochlospermaceae]: An Ethnomedicinal Plant. *Indian Forester*, 137(3):393-394.
- [8] Harihar N.S., and Kotresha, K. **2012**. Wild Medicinal Plants of Kappat hills, Gadag District, Karnataka Part-II. *Life Sciences Leaflets*, 5:37-42.
- [9] Kambhar, S.V. and Kotresha, K. **2014**. Diversity of Tree Species in Gadag District, Karnataka, India. *Natural Science –Academic Paper*, 1-12.
- [10] Shivakumar, H.M. and Parashurama, T.R. **2014**. Phyto-Ethno-Medicinal Knowledge of Folklore People in Kappathgudda Region of Gadaga District, Karnataka, South India. *International Journal of Science and Research*, 3(11):3080-3091.
- [11] Shiddamallayya, N., Rama Rao, V., Doddamani, S.H., Giri, S.K., Shubhashree, M.N. and Bhat, S. **2016**. Ethno-medicine system of Gadag district, Karnataka, India. *Journal of Pharmacognosy and Phytochemistry*, 5(4):109-121.
- [12] Kotresha, K., Harihar, N.S. and Kambhar, S.V. **2019**. Indigenous knowledge of Kappath hills, Medicinal Plants, Gadag district, Karnataka. In: Saraswathi, Y. (Ed), Recent advances in traditional uses of medicinal plants in *Shodhamanthan*, 10(6): 66-75.
- [13] Kambhar S.V., Patil P., Pawar, R., Kalyani, V. and Pandhari, Ch. **2014**. Preliminary assessment of flowering plants with reference to temple complexes or sacred groves in Bijapur. *Research & Reviews: Journal of Life sciences*, 4(2): 28-35.
- [14] Laddimath, A. and Rao, S. **2016**. Herbal Medicine Used to Treat Primary Infertility in Women by Traditional Practioners of Vijayapur (Bijapur) District of Karnataka, India". *International Letters of Natural Sciences*, 50:27-32.
- [15] Rajasab, A.H. and I. Mohamad **2004**. Documentation of folk knowledge on edible wild plants of North Karnataka. *Indian. Jour Tradit Knowle.*, 3:419-429.
- [16] Devendra, N.K., Vijaykumar, B.M. and Seetharam, Y.N. **2010**. Folklore Medicinal Plants of Gulbarga District, Karnataka, India. *eJournal of Indian Medicine*, 3:53–60.
- [17] Ghatapanadi, S.R., Nicky Johnson and A.H. Rajasab. **2011**. Documentation of Folk knowledge on Medicinal Plants of Gulbarga District. Karnataka. *Indian. Jour Tradit Knowle.*, 10(2):349-353.
- [18] Gowramma, B., Kyagavi, G., Karibasamma, H. and Ramanjinaiah, K.M. **2020**. Documentation of Major Medicinal Plants in Sandure of Karnataka, India. *Med Aromat Plants (Los Angeles)* 9:348.

- [19] Nidagundi, R., Shoba, H., Hosamani, V., Krisnappa and Gangadharappa, P.M. **2018**. Ethnomedicinal plants and their utilization by villagers in Koppal district of Karnataka. *Journal of Pharmacognosy and Phytochemistry*, SP3:450-452.
- [20] Topalakatti, A. **2020**. Traditional Uses of Medicinal Plants of Badami Taluk District Bagalkot. *J Tradit Med Clin Natur*, 9:284.
- [21] Dinesh Kumar, Velankar, A.D., Ranga Rao, N.V., Kumara, H.N., Mishra, P.S., Bhattacharya, P. and Mohan Raj, V. **2020**. Ecological determinants of occupancy and abundance of chinkara (*Gazella bennettii*) in Yadahalli Wildlife Sanctuary, Karnataka, India. *Current Science*, 118(2):264-270.
- [22] Jain, S.K. and Rao, R.R. **1960**. A Handbook of Field and Herbarium Methods. Today & Tomorrow's Printers & Publishers. New Delhi.
- [23] Singh, N.P. **1988**. Flora of Eastern Karnataka, Vol. I & II. Mittal Publications, New Delhi.
- [24] Saldanha, C.J. **1984**. Flora of Karnataka, Vol. I. Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
- [25] Saldanha, C.J. **1996**. Flora of Karnataka, Vol. II. Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
- [26] Kotresha, K. and Kambhar S.V. **2016**. Flora of Gadag District, Karnataka. Lap Lambert Academic Publishing, Saarbrucken, Deutschland/Germany.
- [27] Kambhar, S.V. and Kotresha, K. **2011**. A study on alien flora of Gadag District, Karnataka, India. *Phytotaxa*, 16:52-62.



**Table 1.** List of Medicinal Plant Species with their Botanical Name, Family, Local Name, Mode of Preparation against the Aliments.

Sr. No.	Family	Botanical Name	Habit	Local Name	Ailments	Mode of Preparation and dosage
1	Acanthaceae	<i>Perisrophe bicalyculata</i> (Retz) Nees	Herbs	Yalabsandhaka	Fever	10 g of fresh twigs are boiled with 3 cups of water till the quantity is reduced to 1 cup and 60ml of the filtrate is taken early in the morning for 4-5 days before food
2	Amaranthaceae	<i>Acyranthes aspera</i> L. var. <i>aspera</i>	Herbs	Uttarani	Convulsions	5g of root along with bark of <i>Cinnamomum zeylanicum</i> J. Presl, leaves of <i>Ocimum basilicum</i> L., Sanna hippali ( <i>Piper longum</i> L.), and seeds of <i>Piper nigrum</i> L. 5g each is ground and boiled in 3 cups of water and reduced to 1cup. Then 60ml of the filtrate is given to the patient only once immediately after the convulsion attack
3		<i>Aerva lanata</i> (L.) Juss	Herbs	Paashanabhedi	Easy delivery and lactation in mother	Whole plant powder is prepared into 50ml of decoction and boiled it with one glass of cow's milk and about 60 ml of filtrate is to be taken thrice in a week.
4		<i>Alternanthera sessilis</i> (L.) R. Br	Herbs	Mullagasa	Cooling effect	Young leaves and tender part of the plant is directly used as a vegetable
5	Apocynaceae	<i>Calotropis procera</i> (Ait.) R. Br.	Shrubs	Ekki	Diabetes	Two to three leaves are tied over the foot with muslin cloth for overnight. It reduces the blood sugar level
6					Thorn pierce	Applied on the spot on foot where spine/thorn is pierced and tied up with muslin cloth until the spine/thorn comes out.
7		<i>Ceropegia juncea</i> Roxb.	Climbers	Havinaballi	Digestive	Whole plant is used to prepare a juice
8		<i>Wrightia tinctoria</i> R. Br.	Trees	Halagatti	Aphrodisiac	Leaf powder(5g) is taken once in a day for about a week to 15 days
9					removing decayed tooth	Small cotton bud with two drops of latex is put on decayed tooth overnight and the bud is removed in the morning. If the tooth doesn't fall off the

Sr. No.	Family	Botanical Name	Habit	Local Name	Ailments	Mode of Preparation and dosage
10	Asteraceae	<i>Echinops echinatus</i> Roxb.	Herbs	Brahma dande	Aphrodisiac	procedure is repeated for another 1-2 nights. If the male has weakness in his sexual vigour then prepare paste of the root bark powder and applied externally over the male genital organ
11					Inflammation	Root is directly ground in to a paste and it is externally applied over the inflammation till the pain is reduced.
12		<i>Eclipta alba</i> (L.) Hassk.	Herbs	Bhringraj	Hair growth	Whole plant is crushed and boiled with coconut oil and applied regularly to head to maintain hair growth and blackness
13		<i>Glossocardia bosvallea</i> (L.f.) DC.	Herbs	Kallasabbasige	Emmenagogue	Whole aerial part of the plant is
14		<i>Tridax procumbens</i> L.	Herbs	Balachoor kasa/Tikki kasa	Wound healing	Collect the 4-5 fresh leaves and grind into paste, applied over the fresh wound until it cure.
15	Aristolochiaceae	<i>Aristolochia indica</i> L.	Climbers	Ishwari balli	Pancreatic stones	10g of fresh whole plant along with 10g of fresh <i>Cynodon dactylon</i> (L.) Pers. is ground to extract the juice and 30ml of the juice is taken regularly early in the morning before food.
16					Appetizer	About 50g of whole plant is dried under the shade and grind into fine powder. A pinch of the powder is taken with 5ml honey for 7 days.
17	Cactaceae	<i>Opuntia elatior</i> Mill.	Shurbs	dabbagalli	Whooping cough in children	One mature fruit is eaten a day for 4-5 days at any time
18	Capparaceae	<i>Capparis decidua</i> (Forssk.) Edg.	Shrubs	Nispatige	Acidity ( <i>Pitta</i> )	3-5 mature fruits are directly consume for 2-5 days to reduce the activity
19	Convolvulaceae	<i>Evolvulus alsinoides</i> (L.) L.	Herbs	Vishnu kraanti	memory enhancer	About 5g of dry whole plant powder is taken for a month to increase in intellect promotion.
20	Cucurbitaceae	<i>Coccinia grandis</i> (L.)Voit	Herbs	Tondekai	Boils Burns	Collect fresh and healthy leaves and applied with gently boiled coconut oil and keep over the burnt area twice in a day.
21	Euphorbiaceae	<i>Euphorbia geniculata</i> Ortega	Herbs	Haalukudi	Mouth ulcer	Whole plant is eaten once in a day to reduce mouth ulcer

Sr. No.	Family	Botanical Name	Habit	Local Name	Ailments	Mode of Preparation and dosage
22		<i>Euphorbia tirucalli</i> L.	Shrubs	Kalli	Cough	The latex of the plant is directly applied over the neck to cure cough problem.
23		<i>Ricinus communis</i> L.	shrubs	Oudla	Jaundice	4-5 tender leaves are collected and fine paste is made. It is taken early in the morning with empty stomach.
24	Fabaceae	<i>Abrus precatorius</i> L.	Climbers	Gulaganji	Throat cleaning	Leaves are eaten to clear the throat for good sound
25		<i>Bauhinia racemosa</i> Lam.	Trees	Dodda banni	Inflammation	Grind the fruit along with water and paste is applied over the inflammation portion.
26		<i>Cassia fistula</i> L.	Trees	Kakki mara	Laxative	Approximate 5-10 gram of fruit pulp is taken to increase the intestine movement and loosen the stool
27		<i>Clitoria ternatea</i> L.	Climbers	Shankha pushpa	Fever	Tender stem of about 4-6 inches is tied around the neck to cure fever
28		<i>Pongamia pinnta</i> (L.) Pierre	Trees	Hulagali/handara tappala/honge	Itching	Seed oil is applied over the itching parts until get cure
29		<i>Tephrosia purpurea</i> (L.) Pers.	Herbs	Kempu kaggorli,	Snake bite	Fresh root boiled with a glass of water and extract is given orally to reduce the effect of snake bite
30		<i>Vachellia nilotica</i> (L.) P.J.H. Hurter & Mabb.	Shrubs	Kari jali	Whooping Cough	One fruit is ground with 60ml of water. 5ml of the filtrate is taken for 8-10 days before food twice a day.
31	Lamiaceae	<i>Vitex negundo</i> L.	Shrubs	Lakki	Arthritis	Leaves and tender aerial parts are crushed and prepared paste applied over joints regularly
32	Malvaceae	<i>Hibiscus rosa-sinensis</i> L.	Shurbs	Dasavala	Menorrhagia	2 to 4 flowers cooked in ghee (clarified butter) are taken for 4-5 days during menstrual period (for once a day)
33	Meliaceae	<i>Azadirachta indica</i> A. Juss.	Trees	Bevu	Serpentine herpes, skin disease,  treatment of lice	About 8-10g of tender leaves are taken orally in early morning with empty stomach to cure herpes Bark paste is applied over skin in skin disease and allergy Seeds are grinded into fine paste and applied with coconut oil to head and washed with warm water after 20min

Sr. No.	Family	Botanical Name	Habit	Local Name	Ailments	Mode of Preparation and dosage
34	Menispermaceae	<i>Tinospora cardifolia</i> (Willd.) Hook. f. & Thoms.	Climbers	Amrita balli	Diabetes	About 20 gram of whole plant used to prepare juice and it has taken early in the morning with empty stomach
35	Moraceae	<i>Ficus religiosa</i> L.	Trees	Aala	Hair growth	Prop roots are stored in coconut oil and the same oil is applied to promote long growth of hair
36	Nyctaginaceae	<i>Boerhavia diffusa</i> L.	Herbs	Punarnava	Laxative Kidney health	4-5 ripe fruits are eaten for laxative effect Leaves decoction is taken for 21 days for kidney problems
37	Santalaceae	<i>Santalum album</i> L.	Trees	Shrigandha	Cosmetic	Heart wood grind with lemon juice is applied 38externally as cosmetic purposes and taken internally for cooling effect in diluted form
38	Violaceae	<i>Hybanthus enneaspermus</i> (L.) F. Muell.	Herbs	Purusha ratna	Aphrodisiac	Seeds enhances men's vigour
39	Zygophyllaceae	<i>Balanites aegyptiaca</i> (L.) Del.	Shrubs	Ingala mara	Jaundice	Fruit pulp is mixed with jiggery and prepares into tablets and consumed twice in a day until the jaundice is cure.
40		<i>Tribulus terrestris</i> L.	Herbs	Neggala mullu	Renal calculi Reduce hunger	About 5g of dry fruit powder is taken once in a day About 10g of whole plant powder is taken once in a day which helps in weight loss