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Ethnobotanical uses of traditional knowledge on medicinal plants of Chitradurga District, Karnataka, India

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Abstract
A survey of medicinal plants used by rural population of Chitradurga district has been made to assess the medicinal value of herbal healers. It is observed that surrounding people of the folklore practice traditional system of medicine in their healthcare system. About 40 plant species belongs to 37 genera and 25 families, largely used as medicine have been recorded from Chitradurga District. Where included there botanical and vernacular names, plant part used, popular medicinal use form of preparation abdications of the herbal remedies are given. The present work aims at the documentation of traditional uses of the local medicinal plants or the benefit of mankind and further scientific investigation.

Keywords: folk, medicine, remedies, medicinal plants Chitradurga, ethnomedicine

Introduction

Ethnobotany deals with folklore practices of medicines which are widely followed by the different communities of the native population around the world. The value of medicinal plants to mankind is very well-proven. It is estimated that approximately 70 to 80% of the people world widely on the traditional health care system especially on herbal medicines [Famswarth *et al.*, 1985; Farnsworth and Soejato, 1991, Pei Shengji, 2002, Shanley and Luz, 2003]. Our traditional knowledge or the people had knowledge about many plant-based medicines and cosmetics. The new research articles throw light on various agricultural and non-timber forest products. The folklore medicinal practitioners have their own method of preparing medicines. They have been using the natural plants which are easily available in their surroundings. They require simple formulas and are cost-effective with no side effects. Ethnic drugs have been the source of new drugs for various ailments.

The Ethno-botanical wealth of some geographical areas of the country should be recorded. There is an urgent need to record and preserve all information of plants used by folklore healer's communities of Karnataka state before it is completely lost. The Ethno-botanical survey data were collected so that considerable traditional knowledge in India is documented. The reports on Ethno-botanical knowledge in Karnataka state are limited to certain areas. There are slightly reported so far only on certain traditional practices specific to some areas, tribal groups, and disease categories. The data, information and documentation of traditional practices, knowledge of utilization of medicinal plants for various drugs were collected from Chitradurga district of Karnataka state, India. Hence, field trip was conducted to collect the information and document the ethno-medicinal knowledge from local folklore practitioners and knowledgeable people residing in the various taluks of Chitradurga district.

Methodology

Chitradurga district is situated in the central part of Karnataka, covering an area of 8436 sq. km within 13° 34′ to 15° 02′ N latitude and 75° 37′ to 77° 01′ E longitudes. The field survey was conducted in different parts of Chitradurga district, during 2020-21. Several field trips were undertaken to certain villages in Chitradurga district, such as Challakere, Kondlahalli, Bommakkanahalli, Tore-Obanahalli, Hiriyur, Maskal, Goppanahalli, Maskalmatti, Neralaguntte, N Devarahalli, Karikere, N Mahadevepura, Gowripura, Nayakkanahatti, Mallurahalli, Rangavanahalli, Suramanahalli, Jannenahalli, Lambanihatti, Kartikenahalli, Iddala Naenahalli, Haaykal, Adivala, and Chitradevarahatti were selected in the different directions of Chitradurga district (Fig. 1).

The first collected data of traditional herbal healers by using the questionnaires method; Kannada is the most used spoken and official language of the district. To a part of Kannidigas it is also home for Telugu, Konkani, and Lambani dialects. Ethnic groups like tribes belong to scheduled tribes, Nayak, Kadugolla, Kurubs, Bedas, Bestas, Lambanis, Hakki-Pikki etc., are the major tribal communities, in our study area. The Lambanis are also known as Banjaras and their settlement is known as Tanda. Folk health healers are also very much aware of the therapeutic use of medicinal plants.

The folklore traditional healers having practical knowledge of medicinal plants either for self-medication or for treating others. After visited throughout Chitradurga district to collect plant species. A total of 50 folklore health healers were identified between the age group of 35 to 85 years for conducting the field trip. The field trip was conducted in villages around the Chitradurga district. The collected information was documented and then recorded in the Audio-visual devices and based on personal interviews with tribal and non-tribal people in normal discussion and observation were made using questionnaires method during study visits., Ethno-botanical data *viz*., Local names, mode of preparation medicinal uses have been collected through questionnaires, interviews and discussions were conducted with the tribal and folklore health practitioners in their local

language. All the collected information in the questionnaire allowed descriptive responses on the plant prescribed, part of the plant used, medicinal uses, mode of drug preparations likes, decoction, paste, powder, and tablet, etc. The field survey was done by the collected information of plant materials, mounting, preparation and preservation of plant, laboratory and prepare herbarium. The collected plant specimens were identified with the help of Flora of Davanagere by Manjunath, Flora of Karnataka by Saldanaha (1984), Flora of the presidency of Madras by Gamble, Flora of Kolhapur by SR Yadav. The identified plants were further authenticated by experienced taxonomists who were available in our study area. The prepared herbariums are deposited in the department of applied Botany, Kuvempu University and Shivamogga for future reference.

Results

The information on 40 plant species belongs to 37 genera and 25 families are used commonly for remedies of different diseases. The names of plants are arranged in alphabetical order with their scientific names and family, followed by local names (Kannada languages). The plant parts used, mode of drugs, and duration of treatment are detailed below.

Abutilon indicum Linn Sweet. (Malvaceae), Local name: *Shrimudre gida,* Habit: Shrub, Part used: the whole plant.

Therapeutic uses: Dried whole plant febrifuge anthelmintic, demulcent, diuretic anti-inflammatory, juice of the plant emollient, seed demulcent (used for cough and chronic cystitis) laxative.

Acacia ferruginea (L.) (Mimosaceae), Local name: *Banni mara*, Habit: Tree, Part used: Leaves.

Therapeutic uses: Taken fresh leaves and added a few *Garlic*, *pepper*, and *Citrus* fruit juice crushed all to prepare the paste and applied affected part then cure in 30 days.

Acalypha indica Linn. (Euphorbiaceae), Local name: *Jalamali* (Kuppe gida), Habit: Herb, Part used: Leaves.

Therapeutic uses: The leaf of this plant is ground into a paste and taken orally along with the leaf paste of *Mimosapudica*, *Azadirachta indica* and flowers of *Albizzia lebbeck* to treat skin diseases and wounds, Dosage: Twice a day for a week.

Achyranthus aspera Linn. (Amaranthaceae), Local name: *Utrani*, Habit: Herb, Part used: Root, Kidney stone.

Therapeutic uses: The root of the plant was dried in shade and fine powder was taken with hot water orally, early morning for 3 to 4 weeks.

Aegle marmelos (L.). (Rutaceae), Local name: *Bilvapatre mara*, Habit: Tree, Part used: Leaves.

Therapeutic uses: Taken one or two fresh leaves directly, daily morning before food.

Aloe vera (L.) N. Burm. **(**Liliaceae), Local name: *Lolesara (*kumari), Habit: Herb, Part used: Leaves.

Therapeutic uses: Taken fresh leaves paste with the crushed *Turmeric,* take internally once in days to chest pain.

Asparagus racemosus Wild. (Asparagaceae), Local name: *Shatavari*, Habit: Herb, Part used: Fruit, for snakebite.

Therapeutic uses: Taken one teaspoonful fruit powder, taken internally for breast cancer and wounds, the paste of fruit crushed in the water is applied at the affected parts till it cures.

Azadirachta indica A. Juss. (Meliaceae), Local name: *Bevinamara*, Habit: Tree, Part used: Bark, for Fever.

Therapeutic uses: The bark is taken mixed with garlic then it makes a juice take orally in the early morning before food. Dosage: 15ml for two to three days.

Butea monospema (Lam.). (Fabaceae), Local name: *Muthuga mara*, Habit: Tree, Part used: Seed.

Therapeutic uses: Used for eye disorder taken seeds are fried with ghee and crushed then applied to the eyes.

Calotropis gigantean (L). (Asclepiadaceae), Local name: *Ekka*, Habit: Small tree, Part used: Latex.

Therapeutic uses: Few drops of latex are used to treat wounds created by thorns in heels and to remove the thorns from the heel, for only external application.

Calotropis procera (Ait.) R.Br. (Asclepia-daceae), Local name: *Bili ekke*, Habit: Small tree, Part used: Root.

Therapeutic uses: Leprosy, The root is taken made into the paste along with the cow's urine and applied into the ear, once a day.

Canthium parvilorum Lam. (Rubiaceae), Local name: *Kare*, Habit: Shrub, Part used: Root.

Therapeutic uses: Taken root is crushed and extract 2 or 3 drops is passed through the nostrils; of snake bite person initially vomiting then later gives relief.

Clerodendrum inerme (L.). (Verbenaceae), Local name: *Vishamadari*, Habit: Shrub, Part used: Leaves.

Therapeutic uses: Taken fresh leaves crushed to 20 ml of the leaf juice is given daily for an empty stomach before food.

Coccinia indica W&A. (Cucurbitaceae), Local name: *Thonde balli*, Habit - Climber, Part used: Stem, snakebite.

Therapeutic uses: The dried stem is taken and tied to the fresh material and it's taken orally to five drops, snake venom will be vomited.

Cocculus hirsutus Linn. (Menispermaceae), Local name: *Dagadi balli*, Habit: Climber, Part used: Whole Plant.

Therapeutic uses: Half of teaspoon root powder is taken with water twice a day.

Datura stramonium (L). (Solanaceae), Local name: *Maduunike*, Habit: Herb, Part used: Leaves.

Therapeutic uses: Elephantiasis (Anekalu Roga), *Gingiber officinalis, Centra therum anthelmentium*, *Curcuma amada* are mixed in equal proportion and finally crushed to the martial leaf extract of *Datura metal*, *Brassica* oil is added and full one egg is added and mixed thoroughly, heated and applied to the affected part over the *Ricinis communis* leaf is tied, twice a day for 2 to 3 months.

Dodonaea viscose (L.). (Sapindaceae), Local name: *Bandre soppu*, Habit: Shrub, Part used: Leaves.

Therapeutic uses: Bone fracture, the taken fresh leaves are shade dried and powdered and mixed with cow ghee to apply externally on the damaged spot for 4 to 5 weeks to cure.
Echinops echinathus L. (Acanthaceae), Local name: *Bhramhadandi gida*, Habit: Herb, Part used: Root, for food passion.

Therapeutic uses: To take early morning before food, twice a day for 2 to 3 days.
Euphorbia hirta L. (Euphorbiaceae), Local name: *Kempu nenehakki soppu*, Habit: Herb, Part used: Latex.

Therapeutic uses: Taken fresh latex is applied topically on affected part to heal wounds, also, leaves of this plant *Acalypha indica*, *Commelina bengalensis*, *Cissanpeles pareira*, and *Begonia fallax* are mixed and ground into a paste and the mixture thus obtained is applied topically on affected parts to heal wounds.
Ficus racemosa Linn. (Moraceae), Local name: *Atti mara*, Habit: Tree, Part used: Fruit.

Therapeutic uses: Unripe fruits are dried and powdered, and half a teaspoon of this powder is given twice a day.
Gymnema sylvestre R.Br. (Asclepiadaceae), Local name: *Madu nashini*, Habit: Climber, Part used: Leaves, for Diabetes.

Therapeutic uses: Taken fresh three or four leaves daily morning before food.
Hemidesmus indicus (L.) R.Br. (Apocynaceae), Local name: *Haluballi*, Habit: Climber, Part used: Whole plant for cancer.

Therapeutic uses: The whole plant is taken crushed and mixed with an equal amount of sugar, taken orally along with salt. Dosage: 10ml of juice for 3-4 days.
Holoptelea integrifolia (Roxb.). (Ulmaceae), Local name: *Tapasi mara*, Habit: Tree, Part used: Leaves.

Therapeutic uses: Leaves are taken with C*assia auriculata* leaves, one *Black pepper* seed, garlic, one clove is crushed to the paste and applied for the affected wounds, 20gm. applied for one or two weeks.
Jatropha gossypifolia L. (Euphorbiaceae), Local name: *Aduve wadala*, Habit: Shrub, Part used: Leaves.

Therapeutic uses: Resin obtained from this plant is used for mouth wash and to wounds in lips and tongue. Dosage: Twice a day for a week. *Kirgonelia reticulate* (Poir) Ball. (Euphorbiaceae), Local name: *Huli gida*, Habit: Shrub, Part used: Leaves for Jaundice.

Therapeutic uses: Take the fresh leaves then crushed into pills, one pill is taken internally a day during the morning for one week.
Kyllinga melanosperma Nees in Wight. (Cyperaceae), Local name: *Anantha konde hulke*, Habit: Herb, Part used: Whole plant.

Therapeutic uses: The whole plant is crushed with the stem bark of *Cassia auriculata*; ground into a paste is applied topically in affected parts to heal wounds.
Leucas aspera (Wild.). (Lamiaceae), Local name: *Thumbe*, Habit: Herb, Part used: Leaves

Therapeutic uses: Approximately 10 gm, ground with three *Black pepper* seeds and eaten daily morning for 21 days.
Madhuca longifolia (Koen.). (Sapotaceae), Local name: *Ippe mara*, Habit: Tree, Part used: Stem.

Therapeutic uses: Stem and bark of this plant, rhizomes of *Asparagus sacemosus*, *Aristo-lochia indica*, leaves of *Ocimum basilicum*, and *Elephantopus scaber* are mixed and boiled with water and thus the obtained is taken orally to heal wounds. Dosage: 50 ml of decoction is taken twice a day after food for 2-3 days.
Parkinsonia aculeate Linn. (Fabaceae), Local name: *Parangi jali*, Habit: Small tree, Part used: Leaves, for wounds.

Therapeutic uses: Taken shoot and leaves dried and making powder to past and applied to affected parts than cure within 3 or 4 weeks.
Pavonia zeylanica (L.). (Malvaceae), Local name: *Shinakadle (Antutogari)*, Habit: Herb, Part used: Root, for nerves disorder.

Therapeutic uses: Taken dried root and ground to powder then taken ¾ powder and added ¼ *Withania somnifera* root powder mixed with the 200ml of milk of taken internally daily once a day.
Phyllanthus amarus Schum &Thum. (Euphorbiaceae), Local name: *Nelanelli*, Habit: Herb, Part used: Whole plant.

Therapeutic uses: The taken plant is mixed with an equal amount of roots of *Coccinia indica* and seeds of *Tephrosia purpurea* (L), Pers. those materials are crushed to get powder then 5gm of this powder is given twice a day.
Plumbago zeylanica Linn. (Plumbaginaceae), Local name: *Chitramula*, Habit: Herb, Part used: Root, for Hair falls, and races.

Therapeutic uses: The root is taken and shade dried then crushed to powder and five drops of *leman* juice is added and applied to the head wait for some time till it dried and washed with soap, the cure duration is 2-3 weeks.
Pongamia pinnata (L). (Fabaceae), Local name: *Honge mara*, Habit: Tree, Part used: Seeds.

Therapeutic uses: Oil extracted from the seeds of this plant is applied topically in affected parts to treat wounds.
Securinega virosa (Roxb.). (Euphorbiaceae), Local name: *Bilihuli gida*, Habit: Herb, Part used: Leaves.

Therapeutic uses: Fresh leaves are taken, crushed add one *Cardamom*, one *clove* is mixed make juice, then taken orally 10ml twice a day for 2-3 days.
Terminalia arjuna (Roxb.) (Combretaceae), Local name: *Hole matti mara*, Habit: Tree, Part used: Bark and Leaves.

Therapeutic uses: Dried leaves and bark are taken and crushed to powder and mixed with cow ghee applied on affected bone fracture area, it cures in 5-6 weeks.
Terminalia chebula Retz. (Combretaceae), Local name: *Alele kayi mara*, Habit: Tree, Part used: Seed.

Therapeutic uses: The fruit of this plant and Stem barks of *Pongamia pinnata*, *Taddalia asiatica* and *Pterocarpus* is boiled in water and make the decoction, then take obtained decoction to wash the affected parts to heal wounds, about 25ml of decoction is used to wash twice a day for 4 days.

Tinospora cordifolia (Wild). (Menispermaceae), Local name: *Amruthaballi*, Habit: Climber, Part used: Stem, for cough.

Therapeutic uses: Fresh leaves are given to the patient orally for chewing in early morning until cured.

Tylophora indica (N.Burm) Merr. (Asclepiadaceae), Local name: *Adumutada balli*, Habit: Climber, Part used: Leaves and Root.

Therapeutic uses: Taken root is tide and the extract 2 or 3 drops is passed through the nostrils of the snakebite person initially vomiting then later gives relief.

Urginea indica (Roxb.). (Liliaceae) Local name: *Kauballi eruli*, Habit: Herb, Part used: Bulb.

Therapeutic uses: Taken the bulb crushed and added a few *garlic* and *Black pepper*, taken 2 or 3 drops, snakebite, poisoning, cough and asthma are cured.

Vitex negundo Linn. (Verbenaceae), Local name: *Lakki gida*, Habit: Large Shrub, Part used: Leaf.

Therapeutic uses: Leaves of this plant and leaf of *Wrightia tinctoria*, shade dried and powder then boiled in water. Then extract decoction thus obtained is taken orally to remove the scar created by wounds. About 50ml of decoction is taken twice a day for one week.

Discussion

The Ethno-botanical study revealed and considerable about the medicinal plants of Chitradurga district. Data were compared with available literature in different regions of India on medicinal plants. The plants were found in our survey are not recorded earlier. In Karnataka, Ethno-botanical studies on medicinal plants were conducted in Kodagu, Tumkur, Uttar Kannada, Shivamogga, Hassan, and Bidar districts. However, in Chitradurga district, detailed studies on ethno-medicine have not been conducted. The formulation and standardization of these effective phyto-medicines should be encouraged for their sustainable uses. The data accrued is expected to serve as a useful tool for the development of herbal drug industries to improve the tribal and rural economy of the region. The plants are used either single or in combination with other plants. The same information about a particular remedy from different localities or groups of informers reflects the accuracy and authenticity of the medicines. Further, scientific assessment of these medicines on photochemistry, biological activity, and clinical studies are necessary. This may provide a lead in the development of drugs to be used in the modern system of medicine.

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