

Ethnopharmacological Uses of Medicinal Plants in Jannaram Forest Division of Telangana, India

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Abstract

The present study is based on an ethno-medico-botanical survey of Jannaram forest division in Adilabad district of Telangana, conducted in November 2012. The survey revealed forty contemporary folk-medicinal claims comprised of thirty-nine plants taxa extensively used by the Gonds, Nayakapodus, Kolams, Pardhans and Lambadas tribal communities for the treatment of various ailments like; jaundice, urinary tract infections, rheumatic pains, cough, intermittent fevers and bone fractures etc. Information on botanical name, family, Unani name(s), collection number with locality, name of the tribe, part(s) used, name of the diseases against which the plants are used and mode of administration with dosage are given for each claim discussed. The data provided could be utilized to discover new drugs of natural origin by the systematic intervention of pharmacological and clinical trial studies.

Keywords: Ethnomedicobotanical survey, Jannaram forest, Folk medicine, Tribes, Telangana.

Introduction

India has a rich legacy of utilization of medicinal plants in the healthcare system since centuries. It varies greatly within the country and region. The knowledge of folk medicines has been generated by the various ethnic/indigenous communities during the adaptation and survival process, and accumulated through generations by virtue of traditions (Husain *et al.*, 2015). The tribal communities are the megastore of traditional knowledge. The use of the plants as folk-medicine for the cure of various ailments among the tribal people is truly commendable and phenomenal. Proper documentation of the information is need of the hour as the traditional knowledge about the folk-medicine is gradually declining from generation to generation. Based on this rationale, the present work was undertaken and deals with the information on folk medicinal plants of the area studied.

The Study Area

The area of study was Jannaram forest division which lies in the central portion of Adilabad district between latitudes 18° 55' 21" and 19° 09' 5" N and longitudes 78° 55' 10" and 79° 14' 5" E. Geographical area of the division is 925.27 Km², which is 5.7 % of the area of the district. The temperature varies from 15°C to 40°C. Average annual rainfall of the division is 750 mm, received mainly from south-west monsoons. The notified forest area of the division is 617.94 Km²,

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which is 66.78 % of the geographical area. As per Champion and Seth's classification (Champion and Seth, 1968), the forests division falls under Tropical Dry Deciduous and Bamboo Mixed Forests.

The areas explored (Fig. 1) during the present study includes Maruthi Nagar, Jannaram, Kawwal, Alinagar, Dongapalli, Balanpur, Kolam gudem, Gandhi Gopala Puram and Islampur. Various tribal groups like Gonds, Nayakapodus, Kolams, Pardhans and Lambadas etc inhabit all these areas. These tribal people are living in thick forest zones and have their own religious and social traditions. The older generation possesses very useful knowledge of the local flora as folk-medicine as they acquired this knowledge from their ancestors.

Methodology

Extensive field work was conducted in the study area during November 2012. The information were collected through questionnaires, interview and discussions

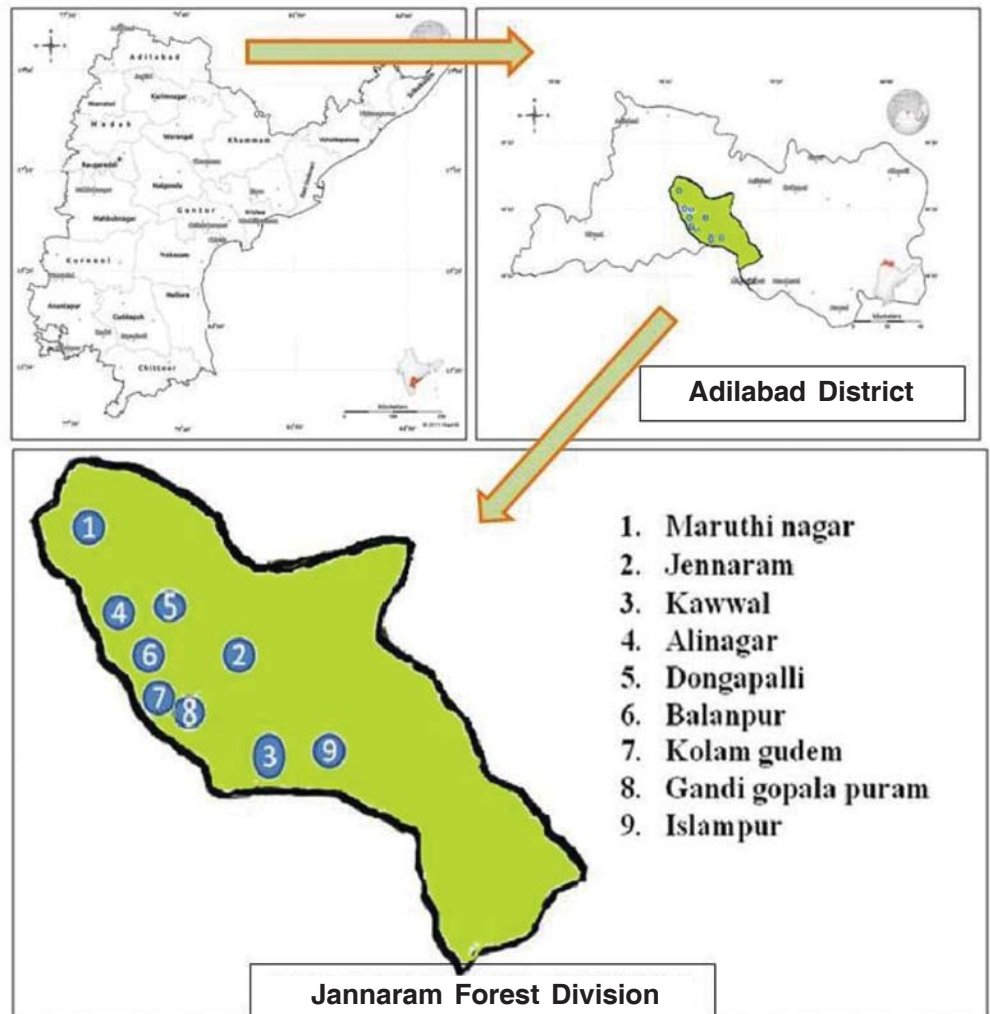


Figure 1: Map of the study area

in the local Telugu language with the reliable informants such as tribal traditional healers and villagers. The questionnaire allowed responses on the plant, medicinal uses of its part, method of preparation (i.e., decoction, paste, powder and juice), mode of the administration, dosage, form of usage (either fresh or dried) and whether the plants used either singly or in combination of other plants. All the plants were identified with the help of related flora "The Flora of Presidency of Madras" by Gamble (1936) and other authentic literature. Voucher herbarium specimens of collected plants were prepared and deposited in the herbarium of Survey of Medicinal Plants Unit of Central Research Institute of Unani Medicine (CRIUM), Hyderabad, for future reference and study.

Enumeration of Folk Medicinal Species

The taxa used as folk-medicine are arranged in alphabetical order in the sequence: botanical name, family, voucher specimen number, Unani name (wherever available), local name, habit, name of the disease(s), method of preparation, administration and name of informant and his community are given as;

Abrus precatorius L. (Fabaceae) SMPU/CRI-Hyd 11181, Ghunchi, Guriginja; Leaves; Dental disorders; Climber; Chewing the leaves strengthens the gums. (Gonds/Misram isru)

Albizia lebeck (L.) Benth. (Mimosaceae); SMPU/CRI-Hyd 11146; Siras; Dirisana; Leaves; Antidote; Tree; Leaves powder is claimed as antidote for scorpion sting. (Gonds/ Sidem Chandu)

Anisomeles indica (L.) O.Kuntze. (Lamiaceae) SMPU/CRI-Hyd 11123, Adabeera; Leaves; mosquito repellent; Herb. Whole plant is claimed as mosquito repellent. (Gonds/ Sidem Chandu)

Anogeissus latifolia Wall. ex. Guill. & Perr. (Combretaceae) (Fig. 2) SMPU/CRI-Hyd 11145, Gul-e-Dhawa, Chirumaanu; Root bark; Obesity; Tree. Daily consuming of root bark powder decreases the body weight (Gonds/ Sidem Chandu)

Aristolochia elegans Mast. (Aristolochiaceae), SMPU/CRI-Hyd 11169 Nagamalli; Root; Antidote; Climber. Root powder is claimed as essential drug for snake bite, especially for the bite of Black Cobra (Gonds/ Bheem)

Bacopa monnieri (L.) Pennell. (Scrophulariaceae) SMPU/CRI-Hyd 11166, Neeri Sambraani Mokka; . Whole plant; Hydrocephalus; Herb. Whole plant is claimed to reduce Hydrocephalus (Gonds/ Bheem).



Anogeissus latifolia



Cassia auriculata



Diospyros melanoxylon



Cleome gynandra

Figure 2: Important Unani Medicinal Plants of Jannaram Forest division

Bambusa arundinacea Willd. (Bambusaceae) SMPU/CRI-Hyd 11133, Tabasheer; Seeds; Cough; Tree. Bongu-veduru. Seeds are made into powder and administered orally to relieve cough (Kolams/ Maruthi rao)

Basella alba L. Var. *Rubra* (L.) Stewart. (Basellaceae), SMPU/CRI-Hyd 11172, Poh, Bachali; Young leaves; Impotency; Climber. In-taking of young leaves daily increases sperm count (Gonds/Badhi Rao).

Cassia auriculata L. (Caesalpiniaceae) (Fig. 2), SMPU/CRI-Hyd 11159 Tarwar, Tanghedu; Leaflets; Ascariasis; Shrub. Daily consuming of 3-5 leaflets, works as *vermifuge* (Gonds/ Telanga Rao)

Cassia occidentalis L. (Caesalpiniaceae) SMPU/CRI-Hyd 11129 Kasondi, Kasinta; Rheumatic pains; Seeds; Shrub. Seeds are made into paste and same is kept externally on affected area to get immediate relief from rheumatic pains (Kolams/ Maruthi rao).

- Cissus quadrangularis* L. (Vitaceae) SMPU/CRI-Hyd 11193, Hadjode, Nallaeru; Whole plant; Bone fracture; Climber. Whole plant is ground into paste and same is kept on affected area by bandaging with a cloth, is a best remedy for bone fracture (Gonds/ Misram Maru).
- Cleome gynandra* L. (Cleomaceae) (Fig. 2) SMPU/CRI-Hyd 11141, Hulhul, Vaaminta; Leaves; Headache; Herb. External application of leaf juice on forehead relieves severe headache (Gonds/ Sidem Chandu).
- Clerodendrum phlomides* L.f. (Verbenaceae) SMPU/CRI-Hyd 11135; Tekali; Oedema; Root; Shrub; Root paste, about 3-5gr., is given orally, and stops accumulation of extra body fluid in oedema patients (Gonds/ Sidem Sankar|).
- Dichrostachys cinerea* Wight & Arn. (Mimosaceae) SMPU/CRI-Hyd 11138, Veluthuru Chettu; Roots; Rheumatic pains; Small Tree; Shade dried roots are pounded into powder. This powder is mixed with lime water to get jelly appearance and finally applied on joints to get immediate relief from rheumatic pains (Gonds/ Sidem Chandu).
- Diospyros ferrea* (Willd.) Batch. f. (Ebenaceae); SMPU/CRI-Hyd 11138; Uti; Leaves; Acidity; Small Tree; Shade dried leaves are pounded to powder and administered orally, about 5-8gm., daily once, relieves acidity.
- Diospyros melanoxylon* Roxb. (Ebenaceae) (Fig. 2); SMPU/CRI-Hyd 11179; Beedi Aaku; Fruits; Ascariasis; Tree. Fruits are edible and work as *vermifuge* (Gonds/Misram isru).
- Emilia sonchifolia* (L.) DC. (Asteraceae); SMPU/CRI-Hyd 11149; Muyalcevi; Leaves; Night blindness; Herb. Leaves are made into powder and administred orally, about 4gm., daily, for six months stops Night blindness (Gonds/ Sidem Chandu).
- Ficus microcarpa* L.f. (Moraceae); SMPU/CRI-Hyd 11131; Yerrajuvvi; Roots; Wounds; Tree. Roots are pulverized and powder is applied externally on wounds, to heal them (Kolams/ Maruthi rao).
- Heliotropium indicum* L. (Boraginaceae); SMPU/CRI-Hyd 11174; Nagadanti; Ringworm infections; Whole plant; Herb. Whole plant is ground and applied externally to relieve ringworm infections (Gonds/ Badhi Rao).
- Hemidesmus indicus* (L.) Schult. (Asclepiadaceae); SMPU/CRI-Hyd 11189; Ushba; Sugandhi; Root; Blood diseases; Climber. Root powder of this plant is claimed as blood purifier (Gonds/ Misram Maru)
- Hibiscus rosa-sinensis* L. (Malvaceae); SMPU/CRI-Hyd 11140; Gul-e-Gurhal; Mandara; Petals; Dandruff; Shrub. Dried flowers are powdered and made into paste. (Gonds/ Sidem Chandu).

- Holarrhena antidysenterica* (Roth.) A.DC. (Apocynaceae); SMPU/CRI-Hyd 11158; Inderjao Shireen; Chedukodise; Roots; Lactation deficiency in mothers; Tree. Roots are pulverized and given orally for pregnant ladies, works as a galactagogue (Gonds/ Telanga Rao).
- Holoptelea integrifolia* (Roxb.) Planch. (Ulmaceae); SMPU/CRI-Hyd 11188; Pedanevili; Bark; Tree. Bark powder is claimed as Piscicide (Gonds/ Misram Maru).
- Indigofera linnaei* Ali. (Fabaceae); SMPU/CRI-Hyd 11134; Yerrapalleru; Whole plant; Oliguria; Leucorrhea; Herb. Oral administration of whole plant powder is claimed to relieve oliguria and increases urination. The same recipe is also claimed to relieve leucorrhea (Gonds/ Sidem Sankar).
- Ipomoea aquatica* Forsk. (Convolvulaceae); SMPU/CRI-Hyd 11152; Thootikooru; Leaves; Rheumatic pains; Herb. Leaves are used as vegetable and the same relieve rheumatic pains (Gonds/ Sidem Chandu).
- Maerua oblongifolia* (Forsk.) A.Rich. (Capparaceae); SMPU/CRI-Hyd 11150; Bhoochakramu; Tuberous root; frequent heart attacks; Climber. Tuberous root is edible. Daily consuming of 10 gm., root stops frequent heart attacks (Gonds/ Sidem Chandu).
- Melia azedarach* L. (Meliaceae); SMPU/CRI-Hyd 11142; Bakain; Konda-Vepa; Leaves; Headache; Tree. Leaves are ground and paste is applied externally on fore head to get immediate relief from severe headache (Gonds/ Sidem Chandu).
- Nicotiana tabacum* L. (Solanaceae); SMPU/CRI-Hyd 11175; Tanbaku; Poga Aku; Leaves; Laxative; Herb. 4-7 ml. infusion prepared from the leaves is administered orally, works as laxative (Gonds/Badhi Rao).
- Phyllanthus reticulatus* Poir. (Euphorbiaceae); SMPU/CRI-Hyd 11127; Nalla-Purugudu; Fruits; Burning sensation; Shrub. Fruits are edible and relieve burning sensation during urination (Kolams/ Maruthi rao).
- Pseudarthria viscida* Wight & Arn. (Fabaceae) SMPU/CRI-Hyd 11120; Nayakuponna; Seeds; Intermittent fevers; Climber. Seeds are powdered and administered orally, about 6-9 gm., relieves intermittent fevers in children (Kolams/ Maruthi rao).
- Solanum melongena* L. var. *incanum* Kuntze. (Solanaceae); SMPU/CRI-Hyd 11178; Verri Vanga; Herb. Curry prepared from the fruits is claimed as anthelmintic (Gonds/Misram isru).

Solanum nigrum L. (Solanaceae); Mako; SMPU/CRI-Hyd 1116; Kamanchi; Herb. Whole plant powder is administered orally, about 4-6 gr., daily 2 times stops intermittent fevers (Gonds/ Telanga Rao).

Solanum xanthocarpum Schrad & Wendl. (Solanaceae); SMPU/CRI-Hyd 11121; Katai-kurd; Nelamulaka; Ascariasis; Fruits; Herb. Unripened fruits are made into paste and the same is applied on gums to kill the germs (Kolams/ Maruthi rao).

Streblus asper Lour. (Moraceae); SMPU/CRI-Hyd 11128; Bajar Danthi; Young twigs; Dental disorders; Tree. Young twigs are used as toothbrushes to strengthen the gums. (Kolams/ Maruthi rao).

Tamarindus indica L. (Caesalpiniaceae); SMPU/CRI-Hyd 11155; Emli; Chinta; Seeds; Antidote; Tree. Paste is prepared from the seeds of unripened fruits, applied externally on the site of scorpion sting and works as best antidote (Gonds/ Telanga Rao).

Thespesia lampas (Cav.) Dalz. Ex. Dalz. (Malvaceae); SMPU/CRI-Hyd 11124; Adavipatti; Leaves; Antidote Shrub. Leaf juice is administered orally, about 10 ml., works as a best antidote for scorpion sting. (Kolams/ Maruthi rao).

Ventilago madraspatana Gaertn. (Rhamnaceae); SMPU/CRI-Hyd 11125; Errachiratali; Root bark; Jaundice; Tree. Root bark is pounded and administered orally, about 4-7gm., daily once for ten days, relieves jaundice (Kolams/ Maruthi rao).

Zizyphus oenoplia Mill. (Rhamnaceae); SMPU/CRI-Hyd 11118; Paraki; Bark; Dysentery Shrub. Oral administration of bark powder, about 8 gm. relieves severe dysentery (Kolams/ Maruthi rao).

Zizyphus vulgaris Lam. (Rhamnaceae); SMPU/CRI-Hyd 11164; Konda regi; Fruits; Sexual impotency; Tree. Fruits are edible and aphrodisiac (Gonds/ Bheem).

Results and Discussion

The potentiality of ethno-botanical knowledge acts as an essential resource for developing new kinds of pharmaceuticals and other medicinally important products. The present study has brought to light and discussed the age old therapeutic methods currently employed by the tribal people of Jannaram forest division. Gupta *et al.* (2008) had earlier reported forty one (41) folk-medicine taxa from three forest division of the Adilabad district including Jannaram forest division.

Out of eighty five (85) taxa of medicinal plants collected and identified, nearly forty (40) are used locally as folk-medicine by Gonds, Nayakapodus, Kolams, Pardhans and Lambadas. Out of these claims, nearly 75% are used internally and 25 % externally. Majority of external applications are for rheumatic pains, severe headache, skin diseases, bone fracture and as antidotes. The internally used drugs are for dysentery, intermittent fevers, toothache, jaundice, urinary problems, cough, leucorrhoea, oedema, gastric problems, night blindness, heart problems, hydrocephalus, antidote for cobra bite, infertility; and also used as laxative, galactagogue, vermifuge and aphrodisiac.

The ethno-medico-botanical data collected from the tribal people of Jannaram forest division pertaining to the treatment of various ailments by plant parts which are used for medicinal preparations were bark, roots, leaves, fruits, flowers, stem, seeds and the whole plants. The most ascendant families of ethno-botanical importance are Solanaceae (04), Rhamnaceae (03), Fabaceae (03), Caesalpiniaceae (03), Ebenaceae (02), Malvaceae (02), Mimosaceae (02), Moraceae (02), Vitaceae (02). The most frequently utilized plant parts were leaves (30 %), followed by the roots (22.5 %), whole plant (15 %) seeds (10 %), stem bark (5 %), young twigs (2.5 %), flowers (2.5%), in the form of decoctions, extracts, paste, juices and powders. Among the different plant parts used for the preparation of medicine the leaves were the most important and frequently used part. The oral administration of the leaves prescribed in majority of the remedies is reported in the present study (Fig. 3 & 4).

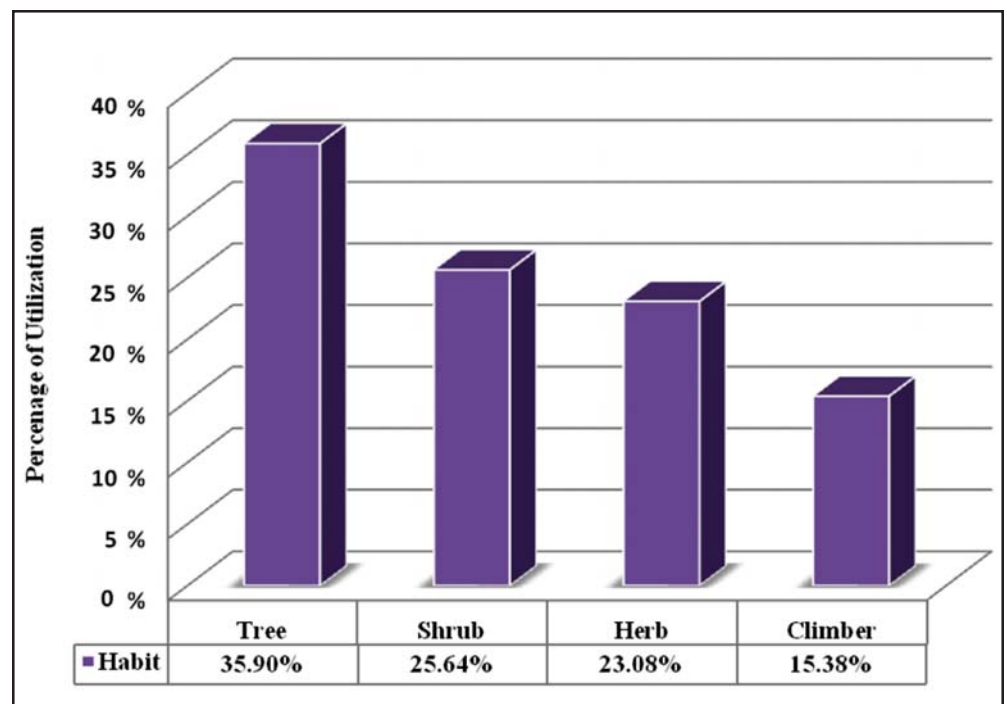


Figure 3: Habit of the Folk-Medicine Utilization (%)

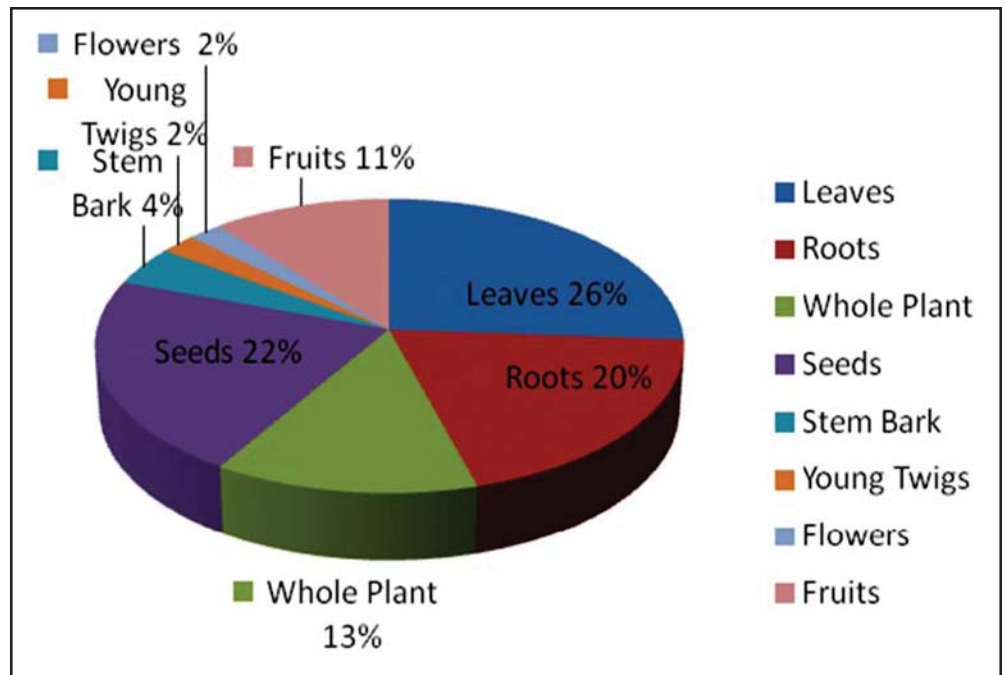


Figure 4: Frequency (%) of Used Plant Parts

The data presented have also been compared with recent and past available literature (Aminuddin *et al.*, 2013; Anonymous, 1976, 1992; Hussain *et al.*, 1992; Jain *et al.*, 1991; Rastogi and Mehrotra, 1990; Chetty and Rao, 1989; Hemadari, 1987, 1988, 1991; Vijaykumar and Pullaiah, 1998; Nagaraju and Rao, 1990; Balaji Rao *et al.*, 1995; Gupta *et al.*, 1997, 2008; Suryanarayana 1996; Hussain *et al.*, 2000; Vedavathy, 1998; Madhu and Swamy, 2010; Murthy, 2012; Lingaiah and Nagaraju, 2013 and Rama *et al.*, 2014). It has been found that most of the folk-medicinal claims reported in the present study are already known, however, their mode of application, ingredients and parts used are different in earlier published literature. Therefore, present work represents contemporary uses of medicinal plants by the tribals of the study area. It would be worthwhile to subject all these folk-medicinal claims to scientific investigations through pharmacological and clinical studies. It is likely that through such investigations new drugs of natural origin may be discovered for treatment of many of the diseases for which there are no satisfactory cure in modern system of medicine.

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