Research Journal of Botany

ISSN 1816-4919

Academic Journals Inc.

www.academicjournals.com

Research Journal of Botany 3 (2): 97-102, 2008
ISSN 1816-4919

Phytotherapy at Rural Communities: A Case Study from the Gonds of Warangal District, Andhra Pradesh, India

[1]C. Sudhakar Reddy, [2]P. Gopal Krishna and [2]V.S. Raju
[1]Forestry and Ecology Division, National Remote Sensing Agency, Hyderabad, India
[2]Department of Botany, Kakatiya University, Warangal, India

Abstract: The Gonds of Warangal district, Andhra Pradesh use the traditional medicine for their primary health care. The study reveals that they possess phytocure for 20 common ailments besides those which are preventive (7), restorative (1), antidotes (2) and of magico-religious beliefs (1). The Gond phytotherapy includes 37 single and 10 double-drug medicines. The plant species which provide the crude drugs pertain to 49 species, 48 genera and 36 families of Magnoliophyta from southern tropical mixed deciduous forests.

Key words: Phytotherapy, Gonds, Magnoliophyta, Andhra Pradesh, India

INTRODUCTION

Gonds are an important ethnic tribe in India. They not only constitute the principal rural population of wide areas in Central India, which is named after them as Gondwana, but once formed a ruling race equal in power and maintained material status comparable to many a contemporary Hindu Prince in the neighborhood (Furer-Hajmendorf, 1979). Gonds are known for their geographic, ethnic, cultural and linguistic diversity and extent of dependence on forest. In Andhra Pradesh, the Gonds are a dominant tribal community in Adilabad district. Although, they are confined to the north of Godavari and west of Pranahita rivers in the State, they also reside further down in parts of Warangal and Khammam districts of Godavari valley.

Gonds speak Gondi, Marathi and Telugu as per their location in Andhra Pradesh though they are predominantly a rural community (99%). Notified as Gonds, Naikpods and Raj Gonds under scheduled tribes, their population as per 2001 census in the State is 1,69,477 while it is 5565 for Warangal district (Anonymous, 2001).

Gonds have their own settlements and in the past were believed to practice slash and burn cultivation. Their main occupation is agriculture and they are also professional cattle breeders. Now, most of them are agricultural labourers and supplement their income by collecting non timber forest produce.

The ethnobotany of Gonds was studied for certain districts of Madhya Pradesh and that of Adilabad district in Andhra Pradesh (Ravisankar and Henry, 1992). However, the Gonds elsewhere in the State are not studied for their ethnobotanical knowledge. So, such a study is called for the district of Warangal since the population of Gonds is steadily bought under the cultural influence of other tribes (Lambada, Koya, Yerukala) or non tribes which form the commanding community. Hence, a study was conceived to document the knowledge of the traditional medicine of rural communities especially of Gonds of the district, which is in unwritten form and passed on even today by oral tradition.

Warangal district is located in Northern Telangana region of Andhra Pradesh (17°19' to 18°36' N latitudes and 78°49' to 80°13' E longitudes). The geographical area of the district is 12,875 km^2 with 3,102 km^2 (24%) of forest cover (Anonymous, 2003). It is bounded on the north by

Corresponding Author: C. Sudhakar Reddy, Forestry and Ecology Division, National Remote Sensing Agency, Balanagar, Hyderabad-500037, Andhra Pradesh, India
Tel: +91-40-23884219 Fax: +91-40-23875932

Karimnagar district and Chattisgarh State, on the west by Medak district, on the south by Nalgonda district, on the east and northeast by Khammam district. The total population of the district is 28, 18,832, of which 1436666 are males and 1382166 females. This population consists of 22, 72, 210 is rural and 5, 46, 622 is urban. The percentage of rural population in the district is 80.4 while that of urban population is 19.6. The Sheduled Castes and Scheduled tribes population are 484654 persons and 385309 persons, respectively. The literacy rate is 39.30%. The district exhibits variation in rainfall, which varies in between 760 to 1182 mm with an average rainfall of 970 mm. The district receives southwest and northeast monsoon rains and summer showers. Eighty percent of precipitation will be usually between June and September. There is no remarkable difference in the temperature, as the district on the whole tends to be dry. The maximum and minimum temperatures have been recorded as 42.9 and 16.2°C, respectively. The humidity varies from 37 to 90%, with the season (Reddy, 2001).

The predominant forest type is tropical southern dry mixed deciduous forest, followed by tropical southern moist mixed deciduous forest. The number of recorded flowering plant species in the district were 1208 (Reddy, 2001).

MATERIALS AND METHODS

The ethnobotanical survey on Gonds of Warangal district Andhra Pradesh, India was conducted during June-December 2005. The Gonds were found confined to north eastern part of the district. Names of the prevalent diseases and disorders among the tribals were noted. Information was collected through in depth interviews and informal discussion with the people (healers and midwives) having high degree of herbal knowledge. The information was gathered from 20 informants in the villages by the method of ethnobotanical enquiry. The informants were about the age of 60 to 70 years. Data pertaining to therapeutic value of the plants could be acquired with great difficulty because of their reticence in divulging the secrets of identity of plants of great traditional reputation. There is a traditional notion among the tribes that if any secret about the therapeutic value is revealed to anyone outside their won heirs, the efficacy of the plant will vanish.

The data were verified among the interviewers showing the same plant sample and even with the same informants on different occasions. The information was considered notable only if the authors observed actual application or similar application was reported by a least two informants. An attempt was also made to note whether the herbalist prepare pastes, pills, powders, aqueous extracts, infusions or decoctions form medicinal plant parts for the treatment of various diseases and disorders. The approximate dose given was worked out in terms of tablespoons in the case of internal use of a drug.

Practices of plant collection by local Gond communities seems to be sustainable and it may not lead to over exploitation in study area. But the recurrent forest fires, excessive grazing pressure, illegal cutting of trees and invasion of exotic species may affect the regeneration of plant populations and their population structure. There is an urgent need for long term planning and conservation of plant resources.

The scientific names of plants used by Gonds in phytotherapy were determined with authentic identification of plant specimens. The plant specimens were collected and identified with the help of the Floras (Gamble and Fischer, 1915-1935; Reddy, 2001) and finally confirmed with the herbarium of Botanical Survey of India (BSI), Coimbatore. Voucher specimens of the plant species used were deposited in Kakatiya University Herbarium (KUH), Warangal.

The survey resulted in collection of 49 species of medicinal plants used for different ailments along with the ethno-medico data from informants.

RESULTS AND DISCUSSION

The findings of the ethnobotanical survey of Gonds of Warangal district are presented here alphabetically. The binomial, family name, vernacular Gond name and phytotherapy (recipe (s), dosage and duration of treatment) are given in tabular form (Table 1).

Table 1: Ethnomedicinal plants used by Gonds of Warangal district

Species name	Family names	Vern. names	Part used	Disease	Mode of administration
Abrus precatorius L.	Papilionaceae	Tella Gurija	Seed	Contraceptive	White seed coat removed and the pulp of two seeds pounded in 10 g jaggery and 20 g red gram, made into 3 pills and administered after the third day of menstrual period for 3 days.
Acacia chundra (Roxb. ex Rottl.) Willd.	Mimosaceae	Sandra	Stem bark	Asthma	Extract (1 tablespoonful) is administered with goat milk for 4 days, with a day gap after every dose.
Acacia chundra (Roxb. ex Rottl.) Willd.	Mimosaceae	Sandra	Stem bark	Antipyretic	Extract of this species along with *Anogeissus latifolia* (1:1) the administered to abate body heat.
Alangium salvifolium (L.f.) Wang.	Alangiaceae	Ooduga	Stem bark	Bone fracture	Bark extract and leaf paste are applied as plaster.
Anogeissus latifolia (Roxb. ex DC.) Guill. and Perr.	Combretaceae	Tiruman	Stem bark	Asthma	Bark extract (2 table spoons) with the internodes of *Cissus quadrangula* L. (Vitaceae) Nalleda, are administered for a week.
Asparagus racemosus Willd.	Liliaceae	Ellamma gaddalu	Tuber	Snake-bite	Tuberous juice (2 table spoons) is administered.
Bauhinia semla Wund.	Caesalpiniaceae	Goddeti aare	Stem bark	Tonsils and neck pain	Extract is administered over affected area.
Boswellia serrata ex Colebr.	Burseraceae	Anduga	Leaves	Sxorpion sting	Leaves burnt and smoke Roxb. inhaled. Further, the roots of Kodikalla Chettu (*Vanda tessellata* (Roxb.) Hook. ex G. Don) Orchidaceae, ground and paste applied over the bitten area.
Buchanania lanzan Spreng.	Anacardiaceae	Morri	Gum	Chest pain	Gum and rice are pounded and the powder is administered for 3 or 4 days.
Calotropis gigantea (L.) R. Br.	Asclepiadaceae	Tella Jilledu	Latex	Ear ache	Latex drops (3 or 5) mixed with sesame oil (2 spoons) are instilled in ears (2 or 3 drops).
Calotropis gigantea (L.) R. Br.	Asclepiadaceae	Tella Jilledu	Root	Fever	Roots of *Calotropis gigantea* (L.) R.Br. are pounded and made into pills; one pill per day is administered for 4 or 5 days for fever.
Capparis zeylanica L.	Capparaceae	Aadonda	Root	Occult powers	Roots made into an amulet; it is believed to infuse occult powers.
Casearia elliptica Willd.	Flacourtiaceae	Kanivisiri	Leaves	Skin diseases	Leaf juice is applied.
Cassine glauca (Roxb.) Kuntze	Celastraceae	Bhutangi	Stem bark	Snake-bite	Stem bark extract (2 spoons) with that of root extract (1 spoon) of *Abrus precatorius* L. is administered twice a day for 2 days with a day gap for snake-bite.
Cassine glauca (Roxb.) Kuntze	Celastraceae	Bhutangi	Root	Evil spirits	Roots of *Cassine glauca* (Roxb.) O. Kuntze tied to wrist to keep-off evil spirits.
Ceriscoides turgida (Roxb.) Tiruven	Rubiaceae	Tella Elka	Stem bark	White leucorrhoea	Extract mixed with curds and administered twice a day for 2 days.

Table 1: Continued

Species name	Family names	Vern. names	Part used	Diseases	Mode of administrations
Chamaesyce hirta (L.) Small	Euphorbiaceae	Guriji	Whole plant	Skin diseases	Whole plant is pounded with salt and turmeric and applied as cream.
Cissus quadrangula L.	Vitaceae	Nalleda	Internodes and leaves	Anorexia	Tender internodes and leaves are pickled and eaten.
Clerodendrum phlomides L.f.	Verbenaceae	Takkali	Leaves	Red eye	Leaf juice is instilled in eyes for ophthalmic diseases (red eye).
Cocculus hirsutus (L.) Diels	Menispermaceae	Patala Bheri	Root	Urine burning	Roots pounded with sugar and administered orally.
Dendrophthoe falcata	Loranthaceae	Vajinika	Whole plant	Infant diseases	Plants burnt (L.f.) Etting. during night (Ethno-medico-magico belief).
Dillenia pentagyna Roxb.	Dilleniaceae	Revadi	Stem bark	Bone fracture	Stem bark pounded with ginger and pepper are applied as bandage in case of bone fracture.
Dioscorea bulbifera L.	Dioscoreaceae	Tandra gaddalu	Tuber	Indigestion	Terrestrial tubers are boiled and eaten.
Diospyros chloroxylon Roxb.	Ebenaceae	Ullinda	Stem bark	Snake-bite	Extract (50 g) along with a handful of leaves of Nela vemu (*Andrographis paniculata* (Burm.f.) Wall. ex Nees. Acanthaceae) are administered.
Diplocyclos palmatus (L.) Jeffrey	Cucurbitaceae	Putaka kaya	Fruit	Fever	One fruit is pound and mixed in a glass of cow milk. It is administered 1 glass per day for 4 or 5 days.
Flacourtia indica (Burm.f.) Merr.	Flacourtiaceae	Kan regu	Leaves	Scorpion sting	Leaves chewed; leaf extract taken into arm and rotated twice (while chanting mantra) and applied over the bite.
Gardenia latifolia Aiton	Rubiaceae	Pedda Karinga	Stem bark	Piles	Stem bark extract (2 spoons) mixed with (1 spoon) that of gum of Tella elaka (*Ceriscoides turgida* (Roxb.) Tiruven: Rubiaceae) and consumed daily once for 3 days.
Grewia hirsuta Vahl	Tiliaceae	Jibilika	Root	Boils and blisters	Roots are pounded and applied.
Holarrhena pubescens (Buch.-Ham.) Wall. ex G. Don	Apocynaceae	Istari Pala	Stem bark	Head ache	Stem bark extract is applied as paste over forehead.
Hybanthus ennaespermus (L.) F.v. Muell.	Violaceae	Nela Kobbari	Whole plant	Tonic	Whole plant pounded with roots of *Elytraria acaulis* (L.f.) Lindau (Acanthaceae) Nela marri are administered as tonic.
Lannea coromandelica (Houtt.) Merr.	Anacardiaceae	Dumpidi, Gumpena	Stem bark	Bone fracture	Stem bark pounded with turmeric are bandaged over the fractured part.
Merremia hederacea (Burm.f.) Hall.f.	Convolvulaceae	Taluntu teega	Fruit	Hair tonic	Fruits pounded and used as shampoo for cleanliness and black shine of hair.
Mimosa pudica L.	Mimosaceae	Rotti Vajinika	Root	Diarrhoea	Root extract (1 spoon) given once a day for two days.
Moringa concanensis Nimmmo ex Dalz. and Gibs.	Moringaceae	Karu Munaga	Stem bark	Cough	Stem bark extract (2 spoonful) is administered with sugar for 4 days for cough.
Naringi crenulata (Roxb.) Nicolson	Rutaceae	Torri elika	Stem bark	Piles	Boiled stem bark extract (1 spoon) administered for a week very in the morning.

Table 1: Continued

Species name	Family names	Vern. names	Part used	Disease	Mode of administration
Nyctanthes arbor-tristis L.	Nyctanthaceae	Karise	Root	Fits	Root bark pounded with that of Nakkapeethirigadda (*Lepidagathis cristata* Willd. Acanthaceae) and pulse seed, and administered.
Pavetta indica L.	Rubiaceae	Papidi	Fruit	Red eye	Fruits eaten as preventive.
Sarcostemma acidum (Roxb.) Voigt	Asclepiadaceae	Immatku, Atukudu teega	Stem	Bone fracture	Stem columns grounded in goat milk and put as band.
Schleichera oleosa (Lour.) Oken	Sapindaceae	Pusugu	Stem bark	Chest pain	Stem bark extract is applied over the chest twice a day till relieved.
Soymida febrifuga (Roxb.) A. Juss.	Meliaceae	Somi	Stem bark	Gout	Stem bark extract (2 spoons) administered with Tani (*Terminalia bellirica* (Gaertn.) Roxb. Combretaceae) fruit extract.
Streblus asper Lour.	Moraceae	Barrenka	Tender twigs	Stomatological	Tender twigs are used as tooth brushes.
Tephrosia purpurea (L.) Pers.	Papilionaceae	Vempali	Leaves	Scorpion sting	Leaf paste applied over the sting and exposed the area to the heat of a matchstick.
Terminalia alata Heyne ex Roth.	Combretaceae	Nalla Maddi	Stem bark	Wounds	Stem bark extract applied over wounds.
Vanda tessellata (Roxb.) Hook. ex G.Don	Orchidaceae	Kodikalla chettu	Root	Dysentery	Extract of white (velamen) roots (1 spoon) given once a day for 3 days.
Wattakaka volubilis (L. f) stapf	Asclepiadaceae	Gurije Banderu	Root	Rheumatism	Root extract along with root extract of these *Hemidesmus indicus* L. var. *indicus*. (Asclepiadaceae) (1:1) (L.f.) administered.
Xanthium strumarium L.	Asteraceae	Mathangi	Root	Evil spirits	Roots tied to get rid of the baneful (noxious) influence, as that of an evil eye.
Xylia xylocarpa (Roxb.) Taub.	Mimosaceae	Bojja	Root	Evil spirits	With roots tied to hand, one can move in the forests, even at night, without the fear of spirits.

Diversity in habitats will lead to development of different vegetation types. Variations in the floristic composition compel the ethnic group to go for local herbs to alleviate their diseases. Conversely, the same ethnic tribe occupying different vegetational habitats is to be studied ethnobotanically (Ravisankar and Henry, 1992). The present study confirms this fact since the phytotherapy of Gonds of Warangal district are found to be different.

The present study enlists 49 angiospermous species (Magnoliophyta), which are employed medicinally by Gonds of Warangal district. Not even a single species of these found to be used by the Gonds of Adilabad district (Ravisankar and Henry, 1992). Such differences in ethnomedicinal knowledge call for further ethnobotanical studies on individual tribes residing elsewhere (Reddy *et al*., 1998).

The Gonds have phytoremedies for 20 common health problems from anorexia to wounds besides those, which are employed as preventive (7), restorative (1), antidotes (2) and of magico-religious beliefs (1). More than one drug is available for asthma (2), boils and blisters (2), bone fracture (4), chest pain (2), evil spirits (4), fever (2), ophthalmic diseases (2), piles (2), scorpion sting (3) and snake bite (3). The constituent plant parts used in the order of preponderance are the stem bark (31%), root (24%), leaf (13.8%), stem (6.9%), whole plant (5.3%), root bark (3.5%), tubers (3.5%), gum (1.7%) and seed (1.7%). Only two of the 49 phytodrugs are of *Liliopsida* (Monocots). The adjuvant is curds, cow or goat milk, ginger, gum, jaggery, pepper, pulses, rice, salt, sesame oil, sugar and turmeric.

The ethnophytomedicines for different pathologies are often in the form of aqueous extracts. But, water is the vehicle for almost all the oral preparations. The drug is also administered as pills, powder or applied as cream, band or taste. The ratio of internal to external application of drugs is 1:2. Of the ethnomedicinal plants reported, tree species constitutes the bulk (49%), followed by climbers (20.5%), herbs (16.3%), shrubs (10.2%), epiphytes (2%) and parasites (2%).

The Gonds obviously use the native herbal medicine to deal with majority of their health problems and at times employ incantations as means of spiritual healing or a combination of both. Still they practice the traditional healthcare system as they have the access to modern medicine nor they can afford it. The use of natural forests tree species (ca. 50%) their bark and other parts (51%) and indigenous taxa in phytotherapy of Gonds of Warangal district is very significant. It discloses the fact that they still have sustainable supply of their herbal drugs while the level of resource erosion is tolerable. However, it is to be noted that the Gonds often complain that they are no longer proximate to certain potential plants and have to cover good distances to procure them.

ACKNOWLEDGMENT

The authors thank the members of Vana Samrakshna Samithies, Mangapet, Warangal district for their help in the field.

REFERENCES

Anonymous, 2001. Census Data, Handbook of Statistics, Warangal District. CPO, Warangal.

Anonymous, 2003. Forest Survey of India. State of Forest Report. Ministry of Environment and Forests, Dehradun, Govt. of India.

Furer-Hajmendorf, C., 1979. The Gonds of Andhra Pradesh. George Allen and Unwin, London.

Gamble, J.S. and C.E.C. Fischer, 1915-1935. Flora of the Presidency of Madras. London. (rep. ed. 1957: BSI, Calcutta).

Ravisankar, T. and A.N. Henry, 1992. Ethnobotany of Adilabad district Andhra Pradesh, India. Ethnobotany, 4: 45-52.

Reddy, K.N., M.R. Bhanja and V.S. Raju, 1998. Plants used in ethnoveterinary practices in Warangal district Andhra Pradesh. Ethnobotany, 10: 75-84.

Reddy, C.S., 2001. Floristic Studies in Warangal District, Andhra Pradesh, India. Ph.D Thesis, Kakatiya University, Warangal.